## MOTOR AGE

Vol. IV. No. 27

**DECEMBER 31, 1903** 

Ten Cents

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Winton Touring Car-Superb in service. Price, completely equipped, \$2,500.



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Not Only One Good Performance Distinguishes the

## Haynes-Apperson Automobile

But a consistent winning with stock machines of every contest ever entered—17 in all. The car you buy is the kind that made this record.

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Our catalogue gives the records complete. Inquirers are urged to visit our factory, where every detail of Haynes-Apperson superiority can be seen and fully understood.

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NEARLY our whole output for 1903 was sold between January 1st and February 15th, and many who neglected to place their orders before January 1st lost their chance.

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# MOTORAGE

VOL. IV. No. 27.

DECEMBER 31, 1903.

\$2.00 Per Year.

#### THE PARIS SHOW MECHANICALLY VIEWED



Paris, France, Dec. 16—This is a chassis show. Running gears without bodies, but with all the other elements of the car in place upon them, are seen everywhere under the great glass roof of the Grand Palais, and the dome of electric fire at night throws many rays of reflected lights from the polished metal parts whose special show finish rivals that of the painted and varnished bodies. Three years ago the management reserved a special hall for the exhibit of chassis. Since then the development of the industry has included an education of

the laity which has made it imperative that makers show the working parts of the car, together with if not indeed in preference to the finished car. Some of the exhibitors this year, in fact, show nothing but stripped machines. Nearly all the others include one or more stripped cars in their display. Bodies are fine. They show great improvement in design and the ingenious use of every art of the carriage maker in the endeavor to furnish the greatest convenience, comfort and luxury. But the public seemingly recognizes in body building an assured standard of excellence. In car construction proper it wishes to investigate thoroughly.

But while the great number of stripped cars, set in among the other 1904 show beauties, would indicate to the casual observer the existence of a great mechanical lesson in the show, of a rare treat for the student of automobile development, the show is in reality less striking in this way than that of last year. It is a technical lesson only for the scrutinizing observer, who is willing to look into small matters for novelty and to judge upon the year's progress by the changes in and improvement of detail. There are no sweeping innovations about which the lay journalist may write. There are no mechanical exclamation points in the trend of the industry as pictured for a twelvemonth. To the laity with money in its wallets or honest check books in its pockets, the show is tantalizing. There are so many different cars, discrimination among which rests upon such fine points, that a probable purchaser is apt to wander in despair through a maze of detail from which he can but emerge confused. Yet, despite the lack of great departure or the setting out of a few great cars above others in point of novelty and general advancement in the art of motor car production, there is less of sameness than at the Mercedes ridden show of last year.

The distinction between the cars is there, but it is not written over the whole outlines of the cars. It is in the manipulation of the smaller constructional features. To discriminate is possible. There is every opportunity for it—too much opportunity. It represents a microscopic study of the whole industry. The show is a great library; rows upon rows of books in approved and generally conventional bindings await the studious reader to open them one by one as he searches for the real value of each.

It is impossible to glance across the great floor and point out a single one feature popularized by the majority of designers. A fad there was last year to characterize the exhibit—the honeycomb radiator; proven a fad by the number of those who displayed it last year and do not show it this year. Last year, again, pressed steel frames, new and attractive, spotted the exhibition just thickly enough to warrant the prediction that this show would be a pressed steel frame show;



MOTOR AGE

The Club's Show Card



Motor age Mercedes Built for W. K. Vanderbilt

but it is not. There are more pressed steel frames than last year, but there are also a multitude of steel lined wood frames, some tubular frames and some structural iron frames.

If there is any one particular element which, by more general use than before, may be taken to represent the direction motor car design has taken, it is the three-cylinder motor, seen on enough of the cars of well known excellence to warrant the belief that it will continue to spread in favor.

The only brief characterization of the collective exhibit that can be made is that the ears show an effort toward sim-

plicity and lighter weight.

Commercially the show is purely continental. France seems to want its motor car industry to be of itself but for as many others as possible. There is one American car, the Oldsmobile, and several English cars, notably the Wolseley, Napier, M. M. C., Hozier and the Clement-Talbot. The rest of the show is continental.

There is greater novelty in running gear design than in running gear construction. Changes in design are due to three things—the increased demand for comfortable touring cars in preference to racers, the popularization of the side door body and the desire to secure a greater arc of movement of the steering wheels. The first two have worked toward increased wheel

base, while the last has caused a narrowing of the front end of the running gear frame. Hence, long, narrow-front frames are in the majority.

As previously hinted, there is no sweeping adoption of one peculiar form of frame construction. There are more pressed steel frames than last year and some of these have taken slightly new forms. For instance, the Darracq frame is a decided advance in pressed frame making. The lower side of the frame is extended into a web which forms a frame bottom, open in the center to receive and support the motor and transmission gear case, the construction being similar to that of the Decauville frame. The latter, however, is not open in the center, as the aluminum bottom casting, which like the Darracq pressed steel web, takes the place of the usual subframe, is without opening; having instead, depressions which form the lower or pit portions of the motor and transmission cases respectively.

The Panhard still leads the band of steel lined wood frame ears, while the de Dion-Bouton, the Renault and the Gobron-Brillie are the foremost examples of the modern tubular frame. Aside from the new Darracq frame, the most novel running gear is that of the Georges Richard-Brazier, which is composite. The main frame is of pressed steel, while the sub frame, which holds the motor and transmission gear, is of tubing.

Axles are heavy, whether of tubing or structural steel. There are several new users of the I-section front axle and there are several cars with seamless steel tubing axles whose ends are steel stampings. Rear axles may or may not be live. The trade is no nearer unity in the matter of live or stationary axles than it was a year ago. There is a wider use of the propeller shaft with bevel gear final drive, however, and in nearly every case of its use the shaft is fitted with a universal joint at each end. In transmission gears the principal difference noticeable is a tendency toward more compact construction of the sliding gear set, that the whole may weigh less and occupy less room than formerly.

In brakes it has become almost the common practice to use the double block, pedal acting brake on the cross counter shaft. In rear wheel brakes there are more internal, or expanding brakes than formerly. But whether the rear brakes be internal or external, there



The Main Hall, Paris Show

is generally provision so that change of the position of the rear axle in chain adjustment does not cause rubbing of the brake blocks or bands.

The great bulk of the motors are improved patterns of the vertical water-cooled motor. Yet there are scattered examples of many other patterns. There are one, two and four-cylinder vertical, one and two-cylinder oblique and one-cylinder horizontal air-cooled motors on motor cycles. In water-cooled motors there are one, two, three, four, six and eight-cylinder vertical patterns; two, four and eightcylinder V patterns; one, two and four-cylinder horizontal patterns; one, two and fourcylinder, vertical, double-piston motors; one and two-cylinder horizontal doubte-piston motors. In each of these styles there are the further distinctions of independent and integrally grouped cylinders. Altogether there are twenty-six distinct forms of motors. Nearly each one is represented by motors of known excellence in service.

Among the more typical motors—those of the vertical, water-cooled pattern—there is little novelty. There are a greater number of mechanically operated inlet valves than last season, and in the use of the mechanical inlet valve there seems to have been a change of opinion concerning the disposition of the valves. Now there is a tendency to depart from the first practice of placing the inlet and exhaust valves on opposite sides of the cylinder, and to place them all on the same side so that all may be operated by the same cam shaft. About 60 per cent of the motors have mechanically operated inlet valves.

The separately east cylinder seems to be in greater favor than the integrally east group of cylinders, the principal reason given for the adoption of this construction being that it avoids a great bulk of metal between cylinders which is easily effected by the tendency toward unequal expansion and contraction. The independent cylinder construction also has the obvious advantage of allowing the easy removal of any cylinder.

The steel cylinder seems to have passed in the night without saying good by; in fact the only sign of a lingering departure is its use on extremely large motors for racing machines.

Ball bearing motor crank shafts are numerous. The usual construction in multi-cylinder

motors is to use balls in the end bearings, while the inside bearings are plain. There is, incidentally, a more generous use of ball bearings throughout the machines than ever before. Enclosed cam gearing, made both oil and dust proof, is found on almost all of the high-class motors.

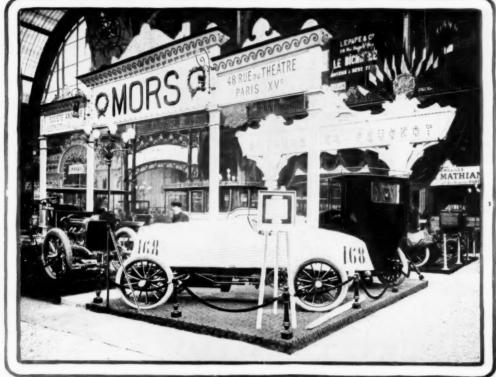
"Automatie" is heard on every hand with reference to carbureters. This may mean something, nothing, or something worse than nothing, according to the carbureter. The implied sense, however, is that the carbureter has an air controlling device where the amount of air drawn into the mixture increases with the increase of motor speed. It is the Panhard-Krebs done up in many styles—Uneeda biscuit under another name.

In the matter of ignition the most notable point is that all forms are employed. There are representatives of the high tension system with batteries and coils; low tension systems with magnetos and with batteries for starting; systems with dynamos and with small storage batteries which may be charged from the dynamos; systems with magnetos and batteries in which the current from



MOTOR AGE

President Loubet at the Show



MOTOR AGE

The Mors Display

either is used through a high tension coil and with a common commutator. In the case of systems in which batteries are used, these are almost invariably small storage batteries, the dry cell not being popular in France. In ignition conveniences the chief features are commutators placed on the dash boards of the cars; small electric bells by means of which the operator of the car may test to determine whether each cylinder's apparatus is sparking properly; and spark plugs with protected electrodes to prevent sooting, etc.

All the motors, with the exception of those of the motor bicycles, being water-cooled, the consideration of cooling systems is naturally confined to the subject of circulation and radiation. In the former there is the same old division of sentiment concerning natural or pump circulation. About 80 per cent of the cars have water pumps, but it is said that the excellent result obtained with some of the systems of thermo-syphon circulation is gradually bringing about the popularization of the simpler system.

In radiation there is a reaction. The honeycomb radiator introduced on the Mercedes and at the height of popularity at the show last year, has lost some of its charm-presumably through experience with it. Many of the cars which were thus equipped last season now appear with modifications of the old coil radiator with improved ribs or fins to increase the radiating surface. Wherever the honeycomb, or similar radiator, is used, it includes a directly driven fan to form a suction air draft through the radiator. Novelty in these appears in the Hotehkiss and Rochet-Schneider cars, in which the fans are so made that the pitch of the blades may be changed to affect the current of air that it may correspond with the requirements of slow or fast running.

Below are given the principal distinctive features or chief improvements in the ears at the show:

Panhard—The chief novelty in this car is the three-cylinder motor, which has the usual water jackets and automatic inlet valves, high tension current ignition and Krebs carbureter.

HAUTIER-An independent clutch is used,

and the heavy flywheel is placed in front of the crank chamber, the makers claiming that this gives a better balance of weight on the crank shaft.

ASTER—These motors are fitted with one cam shaft from which both inlet and exhaust valves are operated. The throttle is controlled by a governor and by hand.

PEUGEOT—The 25-horsepower four-cylinder car is fitted with both high tension and magneto ignition, and has a carbureter in which the feed of air and gasoline is controlled by hand or the governor. An additional foot brake is fitted to the forward end of the gear shaft and the working of this brake does not affect the clutch. The 7-horsepower two-

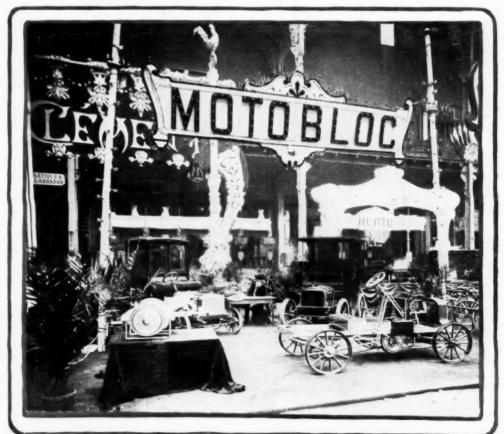
cylinder car has a steel lined wood frame and a foot band brake on the bevel pinion shaft.

HENRIOD—The whole change-speed gear is in a large aluminum easing surrounding the live axle. The counter shaft is carried in bearings contained in the gear case, and the sliding sleeve of the gear travels on a squared portion of the live axle. The differential gear is set on one side, the drive from the engine coming centrally to a beveled toothed ring from the propeller shaft.

HOTCHKISS—This car was designed under the superintendence of Henri Fournier, and a 110-horsepower car of the new make will run in the eliminating trials for the Gordon Bennett race. The features of the car do not differ much from those of the best existing standard makes. There is a live axle drive, ball bearings throughout, including the crank shaft. The bonnet is circular, suggesting a large caliber cannon and a honeycomb radiator is used, with a cooling fan on the inside, the pitch of the blades of which can be altered from the driving seat. When the car is climbing a steep hill and the engine is slowed up, the wings are put at greater pitch and the induced draft is thereby largely increased. The suspension springs of the four road wheels are fixed on the outside of the frame, so that when the car passes over an obstacle there is no chance of the frame and the body of the car coming in contact with each other.

AUTOMOTRICE—This chassis has a clutch similar to the Mercedes, but has the coil tightened on the clutch shaft pulley by the early entry of a small leather covered friction cone into a corresponding cope formed in the rim of the flywheel, in which the metallic coil clutch is placed. The motor and gear are connected only when the friction cone is rotated by the flywheel and the coil spring wound upon the clutch shaft pulley.

ARGYLL—The three-cylinder car is built with an inverted U-shaped steel frame, which is formed at the ends of the longitudinal



MOTOR AGI

A Typical Main Hall Exhibit



MUTOR HOE

The Clement Booth

members, with pockets to take the ends of the springs. The chassis has the Govan gear.

DE DIETRICH-The new model 35-horsepower four-cylinder car has a stamped steel frame, and the motor is ntted with mechanically-actuated inlet and exhaust valves. In pase of gravity the car has pressure gasoline feed to the carbureter, with special nonreturn and bypass valve in the pressure pipe. The clutch shaft and gear shaft are connected by a double link universal joint, and this is so fitted that the detachment of the two nuts permits the withdrawal of the male cone of the clutch. The clutch spring is now placed horizontally beneath the footboard. The pedal brakes are expanding, and are completely encased. The cutting out of the magneto ignition is effected by the rotation of a slotted fiber disc, around which the connections are made. The piston throttle valve on the carbureter is connected with and actuated by the clutch pedal, so that the engine may be throttled while changing speed,

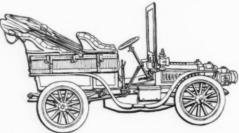
Georges Richard—These cars have a stamped steel frame, with rear springs set outside on long dumb irons, while the underframe, which is of tubing, runs two-thirds the length of the car and depends from the frame proper by H section cradle slings. A special form of universal joint is interposed between the clutch and the gear, enabling either to be detached at will. Two splayed tube outlets issue from the muffler and the exhaust discharge is said to prevent the dust from arising to the back of the car.

ADER-The Ader company has added a ver-

tical, four-cylinder engine to its line of inclined cylinders, still retaining the separate clutch system.

GILLET-FOREST—A new feature shown is one of the chassis carried on extensible wheels, the spoke making connection with the steel felloe by means of hexagonal coupling rauts





on age The Bayard-Clement

and studs. The clutch and brake pedals are provided with toe clips.

COTTEREAU—A variable inlet valve is used, in which the plunger is formed as to part of its length above the cam roller with longitudinal teeth into which a long rack rod meshes, the red running the full length of the gear shaft.

The actuation of this horizontal toothed rack from the steering wheel by means of a central lever depresses the plunger rods, and so varies the lift of the inlet valve.

RENARD—An interesting exhibit is the Renard train, consisting of a number of passenger vehicles drawn by a 60-horsepower tractor. The tractor is not exhibited, but the method by which the rear wheels of the cars are mechanically driven is shown. An overshaft, universally jointed wherever necessary, runs the entire length of the train, and communicates the drive to under-inclined and universally-jointed propeller shafts on each vehicle. The drive is through spur gearing contained in a gear box set in the frame of each car.

GERMAIN—These cars are fitted with both magneto high tension, and ordinary plug ignition, the cylinders being fitted with fluted brass water jacket spun on the cast iron barrel.

PROSPER LAMBERT—Both the 8-horsepower single-cylinder and the 12-horsepower double-cylinder chassis show a motor fly wheel with a deep rim extension to form the female portion of the friction clutch. The whole driving gear is incased and protected.

LEON BUAT—This chassis has two compensated band brakes on the counter shaft instead of one around the differential gear and others on the road wheels.

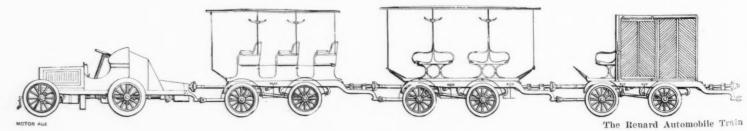
Delahaye—Beside the stamped steel frame design, which is very deep in the web, the only noticeable point is the arrangement of clamps upon the male portion of the clutch, by which the leather may be withdrawn and renewed at will.

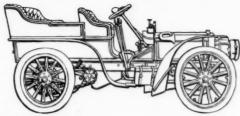
Martini—The carbureter is exhaust jacketed and the air control is from the steering wheel. Wash-out cocks are fitted to the cylinder jackets and pump, the counter shaft runs on ball bearings, and the form of the brakes on the counter shaft has been improved.

PIPE—The feature of this car is the Goliata magnetic clutch, a device by which an electric current is made to serve delicately and effectively as the gripping agent between the driving and driven portion of the magnetic days of the driving and driven portion of the pear shafts.

C. G. V.—This firm has abandoned steel cylinders and now casts the cylinders separately. On each side of the cylinders, above the piston, is a large opening closed by a rectangular plate. The plates are removed for inspection of the piston, and the flat sides allow the cylinders to be placed close together and thus diminish the length of the crank case. Another feature is the placing of the valves on one side, and actuating them with one counter shaft.

Mercedes—The 90-horsepower racer belonging to W. K. Vanderbilt, Jr., is the center of interest at this stand. It is built with a hollow rearward sloped dashboard, under which is the flywheel and clutch. The 60-horsepower touring car has a third pedal on the foot board which applies a third block





The Leon Bollee

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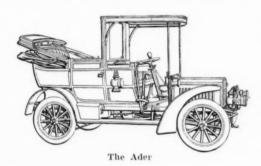
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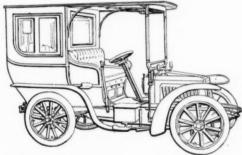
brake upon the forward end of the secondary gear shaft. Other new features are promised later.

CHENARD & WALCKER-This car is now provided with a purely automatic carbureter, which responds instantly to every variation of the engine speed and feeds a constantly proportioned carburated mixture to the engine, whatever the demand upon it. The thermosyphon system has been adopted in connection with a honeycomb raquator.

DECAUVILLE-The crank chamber and gear box are carried on a steel bed plate instead of aluminum as heretofore. The central lines of the cardan joints on the propeller shaft intersect. The circular pump is set on a lever with the lowest point of water circulating in the cylinder.

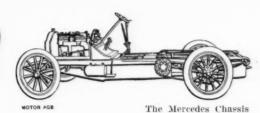
SPYKER-In the 16-horsepower four-cylinder car the engine casting is circular, with embossed plates bolted to each end. The four cylinders and valve boxes are formed in this circular hollow easting, this being done to



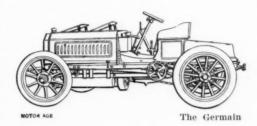


The Darracq

simplify the water jacket coring and to obtain an ample body of water around the valve chambers. The exhaust valves are set on one side and the inlet valves on the other, both being mechanically actuated. Two cylinders are cast in one circular envelope, the two castings being flanged on their abutting faces and bolted together. In the six-cylinder car all four wheels are driven. The rear pair are rotated through a clutch, gear, propeller-shaft and bevel gear, but the gear is provided with an extra gear shaft, from which a propeller shaft runs to the steering axle, which is a live axle, and this is fitted with a differential gear and bevel wheel the same as the rear wheel. The steering axle drives the steering wheel through ball joints which permits of them being deflected for the purpose of direc-



FLEXBI-This car has four steering wheels carried on spindles set at the ends of a cambered frame rocking centrany on the fixed driving axle of the car. The steering spindies are connected to an articulated steering gear, so that when the wheels are deflected each takes the argle necessary to the curve



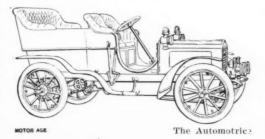
desired. The longitudinal rocking of each side member permits of any wneer passing over obstacles without lifting the car. The steering center of the wheels are in the hub centers.

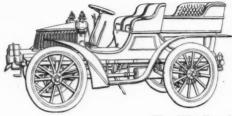
BROUHOT-A novel feature is the device for preventing jolting due to road shocks. On each end of the back axle inside the frame is a drum, around which is a metallic band sufficiently loose to allow the free revolution of the drum. This drum is suspended from a steel cable, one end of which is attached to the frame and the other end to a strong spiral spring, to which the required tension is given by a cable passing around a ratchet With the vertical movements of the road wheels the drums of the axles meet resistances in the steel bands, which give according to the tension of the steel cable and spring.

HERALD-This ear has an automatic earbureter with upper and lower inlets in an air tower, and between these is a speciarry weighted piston, which yields to the increased suction of the engine and, rising in its portion of the cylinder, uncovers additional air ports.

DARRACQ-Three new types are being built for next year with motors of 12, 15 and 28horsepower. One original feature is the pressed steel frame, which is extended in the form of a broad flange or web to act as a support for the engine and gear box in place of the usual secondary frame. M. Darracq is said to be the inventor of the system of pressing the solid bottom frame out of one piece. The frame is narrower at each end than in the center, where it is dished out to give space for the fly wheel.

RENAULT-This company has three new types of engines and is now building its own single-cylinder motor on the same model as





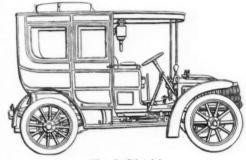
The Gillet-Forest

the big engines. In the single-cylinder, 7horsepower motor the carbureter is automatically throttled, at the same time the mixture is varied according to the speed of the engine. The motor is slowed nown by a special device which gives more or less tension on the induction valve spring. The engine is lubricated mechanically by means of a wormshaft and ratchet.

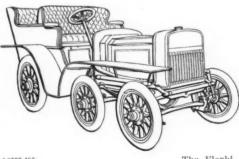
Gobron-Brillie-A jet carbureter of special design is a new feature of this car. This is used in place of the mechanical gasoline feed which formerly distinguished these motors.

DUCOMMUN-The motor is fitted with automatic inlet valves made in one piece, the valve ring and guide being formed in halves, so made that when the valve and its seating is withdrawn from the valve box the valve can be detached and replaced in a few sec-

BENZ-In the Benz-Parsifal cars the engines have mechanically-operated valves on



The de Dietrich



The Flexbi

both sides of the cylinders, and magneto and high tension ignition. A feature is the tubular front axle with strong stampings, forming the steering center brackets fitted on the ends. The drive is conveyed to the change-speed gear by a small mechanical segmental clutch.

CHAEOCHE-The principal feature in this steam car is the automatic water, kerosene and lubricating oil feed under air pressure.

Tony-Huber-The worm on the steering shaft is curved inward so that all the teeth of the sector are in mesh and the arrangement provides an absolutely irreversible gear.

F. I. A. T .- The chief novelty is the clutch, in which the friction cone acts upon a strong spiral spring around a cylinder of tempered steel keyed on to the primary gear shaft. The whole is enclosed and runs in an oil bath.



#### PUT STYLE INTO IT

To an American a peculiar feature of the Paris show would be the uniformed young men who are stationed in various exhibits for the different purposes attending the conducting of a show display venture. They are not seen at New York and Chicago shows. They are worth while.

There is always a great demand upon the services of salesmen at shows, especially during the evenings, when the attendance is great. There are many who come to the shows not as actual customers but to whom, nevertheless, courtesies of the occasion must be shown. A hurried yes or no over the shoulder is never satisfactory. It interiopts one conversation and starts but does not conclude another. No question of a curious show visitor can be answered by a monosyllable.

Suppose, then, that at a large show display the exhibitor provided himself with several intelligent young men who, while not fully qualified to act as salesmen, were well posted on the construction of the car and fully able to answer the ordinary line of questions, or to even engage the attention of the questioner until such moment that the salesman might have time to talk freely to the visitor.

Suppose, then, that each attendant should be costumed in some garb distinctive both of automobiling and of the maker he represented-the latter not by letters on his back and coat, but by the simple differentiation of his dress from any other in the show.

Clownishness costumes would, of course, ruin the whole project, but simple, dignified yet peculiar dress would create an impression of earnestness and enterprise that could not fail of results.

#### ROAD OILING EXPERIMENTS

In Europe and on the Pacific coast various varieties of "authorities" have conducted experiments in road oiling and have met with varied success. Enough good results have been obtained, however, to warrant the conclusion that there is "something in it," and to encourage further experiments.

Park commissioners in our large cities are proper persons to take hold of these experiments. They have highways very well suited to such experiments and enough time and presumably energy and money to conduct the work in a first-class fashion.

Automobile clubs should be much interested in the proposition and should be the first to seek co-operation with park boards in carrying on road oiling experiments. Co-operation with park boards is good work, anyway, whether the road oiling or other basis of co-operation amounts to much or not. It brings automobilists into close communion with horse ownersin most cases of such co-operation-and establishes relation of interests which is a desirable substitute for all the too common conflicting of interests.

#### THE HUMAN SIDE OF IT

To best appreciate the real greatness of the automobile as a factor in the progress of society, one should stand on a street corner some cold day and watch the struggles of a tired fallen horse making a noble, unselfish effort to get up and go on with his work of hauling the burdens of man.

You stop a moment as you pass and feel an oldfashioned thrill of pity for the poor beast. Then you pass on and forget or try to forget. You can do nothing.

The automobile is commonly reckoned a red devil or something of the sort come to give a few men great pleasure. It is more. It comes to take the burden of the horses. comes as the load carrier of the future.

The pleasure vehicle but foretells the immensity of its possible usefulness. Pleasure motor cars may always remain to replace the horse drawn pleasure conveyances, but alongside them will spring up so great a variety of commercial vehicles that the whole aspect of the transportation business will be changed.

It is a dream today. Tomorrow it will be a definite system of progress working its way toward finality.

Organizations of humane purposes whack a little here and a little there at the brutishness of men who drive horses to their death and then whip and kick them when down, sullen in their anxiety lest the faithful animals may not rise again to do their bidding for the miserable pittance of a bag of oats, awarded begrudgingly.

The automobile strikes at the center of the problem. It removes the possibility of cruelty It sets free the enslaved business horse. It closes the whip factories and it puts an end to an avenue of employment for brutish men,

building up instead a class of employment in which brains, not gall, prevails.

Utility may be the chief reason for the adoption of the automobile in new ways. Dollars and cents saved may be the motive every time that a business man buys a motor car for the hauling of his goods. At the same time, whether intentionally or not, he is doing the interests of humanity one of the greatest favors which it is possible for him to bestow.

The automobile is the best friend of the kind hearted man.

There can be little doubt that a war between Russia and Japan would have its effect upon the automobile industry. Japan has taken kindly to the automobile, just as that country does to all things of a modern nature, and a war with so powerful an antagonist as Russia would certainly tell upon the resources of the country and its people. Consular reports have shown that the Japanese have already invested considerable in money in motor vehicles, both in this country and in Europe, so that if a peaceable solution of the Russo-Japanese question is reached it means much to automobile

From all that can be learned of next year's models there will not be sufficient changes over those of 1903 to warrant the prospective purchaser in holding off ordering until after the shows have been held, and by so doing run the risk of securing so late a delivery as to cheat one's self out of many an enjoyable spring ride. It is true there will be changes, but indications point to such matters as being in details chiefly and not particularly in the matter of design or reliability.

"If a 1,000-pound rig with a 12-horsepower motor can go a mile in 1 minute, 20 seconds, a 500-pound racing rig with a 15-horsepower motor ought to turn the mile-a-minute trick." How many times have we made such calculations in anticipation of building a notle racer with which to clean up next season's track events!

In some parts of the country bicycles have become as much of a curiosity as they were along in the late '70s, while automobiles have ceased to cause wonderment even in the most remote country districts. Indeed, what a change! Your philosopher doubtless has his eagle eye on the air ship.

W. J. Bryan visited the Paris show and took some interest in French automobiles. He expressed greater regard, however, for the new French 5-cent nickel which the government turns out at a total cost of less than a cent each.

There is some consolation in the fact that the longer the cold weather lasts to keep the motorist off the road, the more enthusiasm he will generate for the sport later on.

If any money is left the automobile dealers ought to have a turn, now that Christmas shopping has left the other merchants rich.

Good-bye and good luck to you; you have seen a track mile in :54 4-5, but your successor will see one in :50 flat.

New York will be a fast year-scores of new racing cars and other cars with "Pullman buffet" bodies.

#### A Reminder That

#### THREE YEARS AGO THIS WEEK

The Electric Vehicle Co. moved its offices from New York to Hartford, Conn., where its entire making and selling interests were consolidated.

#### TWO YEARS AGO THIS WEEK

The Massachusetts Automobile Club moved into its new club house in Boston. the first club house in America built especially and solely for an automobile club.

#### ONE YEAR AGO THIS WEEK

The automobilists of New York city compromised with the aldermanic law committee on an 8-mile city and 15-mile suburban speed limit in preference to the previously proposed general limit of 10 miles an hour.

#### REFUSE TO TAKE SIDES

## Boston Dealers Will Not Affiliate With A. A. A. So Long As There Is Competition With A. M. L.

Boston, Dec. 28—At the recent meeting of the Boston Automobile Dealers' Association a motion was made that the association become a member of the projected Massachusetts Automobile Association, which is to be a division of the A. A. A. The idea brought forth more or less discussion. While several gentlemen were willing to become members of the three A's, there were others who felt that so long as there is more or less friction existing between the A. A. A. and the A. M. L., it would

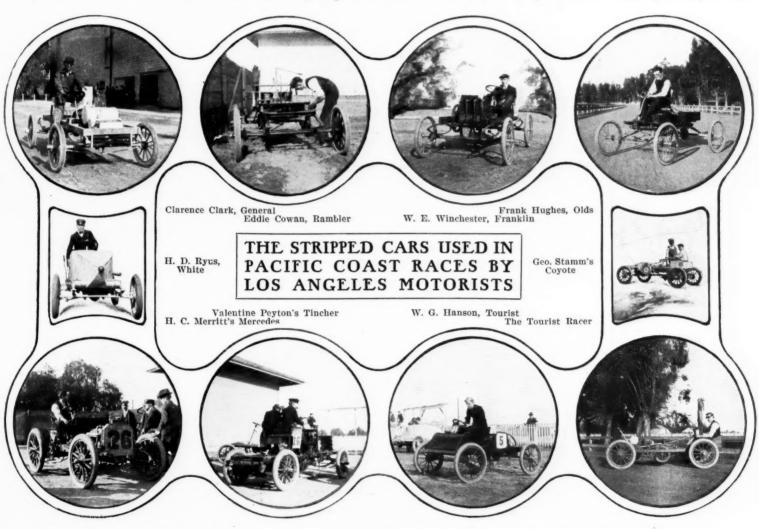
over good, bad and indifferent roads, and would prove an admirable testing ground.

In speaking of this matter Harry Fosdick, who has driven over almost every road in New England, said: "The proposed road is an excellent one, but I doubt if the desired permission can be secured. There is, however, a still better course in New England, one that would be just suited to the test, and would prove the reliability, speed and hill climbing ability of the competing machines. I mean the so-called triangle from Boston to Providence, Providence to Worcester and Worcester to Boston, making in all a distance of about 150 miles. On this trip the contestants would experience driving over all sorts of roads, the majority of which, however, is of the state character, being smooth as a billiard table and

#### HARD QUALIFYING TRIAL

#### A. C. A. Determines that Preliminary Test of Gordon Bennet Race Candidates Shall Be No Sinecure

New York, Dec. 26—The cable announces that the date of the international cup race over the German course has been set for June 17 next. This will probably result in the A. C. A. racing committee setting the trials of the American team candidates for about the first of May. It is still maintained that these trials will not be merely perfunctory, but that the machines will be put to thorough tests for speed and endurance and rejected altogether if not found up to requirements.



be decidedly unwise for the business interests to morally or otherwise take sides in the question, and therefore it was determined that until the fight between the two organizations, if fight there really is, be settled, the dealers of Boston would join neither organization. The dealers doubtless took the best course possible under the conditions, even though by so doing they unintentionally gave the movement of the A. A. A. a set back in Boston and Massachusetts. A meeting of the proposed Massachusetts association is to be held this afternoon, and the results thereof will be interesting.

The idea of holding the preliminary trials for the James Gordon Bennett cup race on the course from Boston to Worcester and return, which originated in New York, has met with considerable favor among the local motorists, who are satisfied that the necessary permit can be obtained from the city and town officials along the route suggested. The course is about 45 miles in length, runs up hill, down dale,

about the nearest approach to the roads of Germany that can be found in this country. Personally I am inclined to think that the automobile clubs of the three cities would make every effort possible to secure the necessary sanction from the town and city authorities along the route, and the raising of the speed limit is not impossible, as the present law permits the officials to grant special permits for driving faster than the legal speed limit. Such a test would be of inestimable value to the sport in this section of the country."

Kenneth A. Skinner returned from Paris last Friday and immediately buckled down to work in his Boston establishment. Mr. Skinner was decidedly pleased with the result of his trip abroad and announced that he had concluded arrangements for the importation of a larger number of de Dions than was handled by him last year. He also has the agency for the Boyer.

The original Motor Age suggestion of a mile straightaway or on the track for speed, a hill climb for strength and a long run for endurance is gaining in favor.

According to stories at this end of the line Mr. Mooers will build two entirely new racers and place them at the disposal of the A. C. A. for the contest. It is said that Mr. Mooers will not be a driver in the race. In fact it is reported here that overtures have been made to Foxhall P. Keene and W. K. Vanderbilt, Jr., to drive the Peerless racer.

Mr. Hewitt's chassis is nearly completed. It is expected that a test of it will be possible within a fortnight. It seems pretty well assured that Mr. Hewitt will not drive his ear in the race. There is a story afloat that an effort will be made to secure Barney Oldfield as the Hewitt driver. In view of Oldfield's contract with the Winton company this seems improbable. Mr. Keene or Mr. Vanderbilt may drive the Hewitt, however.

#### NEW ENGLAND PLANTS BUSY

## Flying Trip Among the Automobile Centers Shows Makers and Dealers In An Optimistic Frame of Mind—What Some of the Factories Are Doing for the Coming Season

New York, Dec. 27—Busy preparations for the coming shows, a hopeful anticipation of the indications they will give of next year's business and optimism tempered by characteristic Yankee conservatism were noted by a Motor Age man in a flying trip through New England, made just before Christmas. Hasty visits were made to some of the leading factories, so brief as to permit of the jotting down of but a few scattered notes of what was doing.

There was a general disposition to discuss trade conditions very dispassionately and none at all to take to the airy flights of prophecy that went with the "boom talk" of the industry in its earlier days. Present Wall street conditions were regarded with not too much fear and as likely to have little more than a local effect, if any, on the automobile trade. The likelihood of still more formidable importing competition in the metropolitan district was acknowledged, though little fear of American makers failing to hold their own in New York and to continue their practical monopoly of the trade in the country at large was in evidence.

Though a tendency was very manifest among the big companies to broaden their lines by the addition of new models to meet the demand for vehicles of the runabout class and of the tenneau variety listing from \$200 to \$300 above the even thousand, the changes promised in existing lines were far less radical than in former years, indicating the nearer approach of American makers to satisfactory standard construction.

In the random observations set forth herein it must not be forgotten that the object of the writer's trip was not to get facts for a complete review of New England trade, but that the following jottings were merely the result of casual information picked up on the way in the course of a journey having another purpose in view.

John A. Kingman was found at the Locomobile factory at Bridgeport up to his ears in the work of getting out the 1904 catalogue and preparing the designs and reading matter for the coming year's advertising. Mr. Riker left his drawing table for a few minutes' chat. "I shouldn't be a bit surprised," said he, "if there should be some demand for automobile boats. How considerable it will be is problematic. We have made no preparations to meet it, but if the demand should be big enough our location in the center and in the midst of a boat building community will enable us to supply it without much delay through preparations. I know something of power boat building, having been the designer of the first electric launches used in this country."

Mr. Kingman took the Motor Age man through the factory. Its vastness and the attention to systematic detail in evidence were impressive and showed the master band of the veteran factory superintendent, Mr. Russell. The testing departments were most interesting. In these every bit of material is tested by chemical analysis and physically for tensile strength. Every part is measured after each important operation. A thorough inspection goes with the tests. When a chassis is com-

pleted an old body is put on and the machine is run on all kinds of roads for 200 or 300 miles. When found up to requirements the chassis is cleaned and painted and the new body put on. The customer is thus assured of a thoroughly tested and perfectly running machine being placed in his hands.

"The 1904 gasoline touring car," Mr. Kingman said, "will have no frills about it, but have undisputed improvements as the result of the experience of our testers and our customers. It will have longer wheel base and springs and be controlled by hand and foot throttles. Our 16 to 22-horsepower chassis will be listed at \$3,200; and our 9 to 12-horsepower two-cylinder car complete with body, lamps, tools and entire equipment, at \$2,000,"

The MOTOR AGE man found President Budlong, Mr. Huntington, Mr. Law and Mr. Maxim at the Electric Vehicle Co.'s factory, at Hartford, at the same time. An all around hour's chat was the result. "I am a great believer in Americans sticking to their international cup attempts until they make good and in the end win," said President Budlong. "I am sure they will do both in the near future. The success of our touring car on its Chicago to New York record trip and on the endurance run made me ambitious to enter a racer; but the building of a special racing machine worthy to compete with the European flyers would have too seriously interfered with our factory work this year. We might have put in a touring car to prove that it could show a fast heat and stay the distance, but that would not have been enough in a race against the cars of high power, which the European factories will turn out especially built for the race."

Mr. Law, designer of the 1904 four-cylinder car, was very ready to talk of his new product and showed the engine itself mounted for testing in one of the shops, "The engine, though rated at 30 horsepower, will show at least 35," said Mr. Law. "It is built on a new system, but retains all the power merit of the Chicago-New York record car. Our car will weigh 2,560 pounds, which is a saving of 900 pounds on last year. The cooler is of the light honeycomb pattern and has a square ended bonnet, which divides in half fore and aft. The tonneau has been enlarged and its lines have been changed. The controlling features are new. Instead of three thumb levers on the steering part, there are two fixed in the wheel so that it will not be necessary to remove the hand. The ignition is controlled through the center steering post and the throttle by a foot pedal. The same system of gear changing fore and aft is used. The selection system enables a change of gear without using the intermediate notches. A storage battery ignition system is employed with two batteries, which is better than the magneto system, and a disc cooler is used. There are mechanically operated inlet and exhaust valves. All working parts are enclosed. The engine is mounted on the frame with short steel supports."

Hiram Percy Maxim designed the new twocylinder car, which is to list at \$1,700. "It

will develop," said he, "fully 14 brake horsepower. The car will weigh from 1,800 to 1,900pounds. It will have two seats in front and
two comfortable seats in the tonneau so arranged that one's legs can be stretched through
the placing of the feet beneath the front seat.
A sliding gear transmission is used. A 14 percent grade can easily be climbed on the high
speed. The car was tested by a continuous run
of 650 miles. The mechanism has been made
as near foolproof as possible. The ignition
control is the same as on the Mercedes, operated by a thumb lever. The lubrication is automatic and does not have to be turned on or
off. There are two brakes."

The writer was also shown a completed model of the electric runabout already described in Motor Age. It is a very eatchy looking little vehicle.

The Motor Age man's business did not happen to take him to the Pope Mfg. Co. factory, where the new two-cylinder, medium priced Pope-Hartford tonneau was about completed. He, however, ran across Fred Gi bert, who was enthusiastic over it, but did not feel warranted in disclosing any of the details of its construction.

At the office of the Veeder Mfg. Co. President Post was expected back from the Paris show the day before Christmas. His letters idicated that his 3 months' stay abroad had be no fruitful of results. Mr. Post arranged to have his foreign agents have fixtures on hand to attach the Veeder odometers to the different European makes of automobiles.

The new method of attaching tires to the rim was the main thing Burton Parker and Secretary Gilson, of the Hartford Rubber Works, had to tell about. The method has already been described in Motor Age.

Temporary interest at the J. Stevens Arms & Tool Co. factory at Chicopee ralls, on the day of the call centered in the magnificent mounted head of a moose, killed by Mr. Hildebrant on a recent trip in New Brunswick. Hoofs mounted for use as inkstands were further trophies of the kill. With such striking products of the Stevens arms at hand there was little desire on the part of the staff to talk automobile beyond speaking of the large crop of orders for next year that had resulted from the Stevens-Duryea successes on road and hill during the past season.

George Hendee was found in an optimistic mood at his Springfield office over the future of the motor cycle in this country and of his own Indian in particular. He pointed with pride to the contrast of the light, graceful lines of his own pets as compared with the trade paper illustrations of their more cumbersome and intricately constructed British prototypes. "I have the utmost confidence," said he, "in the future of the motor cycle in this country. It is bound to become as popular here as it is in England, where the weekly output is 200 bicycles. You know that 94 concerns exhibited at the recent Stanley and National shows. Up to now we have devoted most of our time to booming the motor bicycle. It is now recognized and popular all over the country save in a few districts. Now we are going to begin to build them in earnest and are calculating on an output next year of 1,000 and perhaps 1,200."

The writer did not get to the Knox factory at Springfield, but heard in Boston of basy times at the "waterless" shop. Mr. Bowman, of the Fisk Rubber Co., said the factory was running sixteen hours a day and that the in-

dications were that the capacity of the Chicopee Falls plant would be tested to its utmost.

Mr. Gaylor, of the Waltham Mfg. Co., at Waltham, Mass., had only a moment or two to spare for a chat and express his confidence that the 1904 improvements would still further increase the popularity of the Orient buckboards the coming season.

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was e inMr. Adams, of the Crest Mfg. Co., at Cambridge, was equally rushed.

Of course, a visit to Boston on motor vehicle matters intent would have been incomplete without a few minutes' tarry at the "Automobile Market." It takes up the entire vast building formerly known as the Park Square station. Here at least a dozen agents for complete vehicles, parts and accessories have leased offices and floor space. At times 300 vehicles may be seen at once under the roof. Ine floor space is distributed among sample vehicles on show and private machines in storage. Among the complete car agents in the market are: Disko & Snow, who now handle

Regas and Americans and propose to add Walter cars and Clements to their line; Smith & Moore, Autocars; the Buffalo Electric Carriage Co., Boston branch; H. L. Radford, Decauvilles; F. C. Dole, second hand vehicle broker, and Angier & Whitney, Cudells.

Harry Fosdick was found complacently and contentedly enthroned in the fine garage on Stanhope street, just off Columbia avenue, expecting hourly the arrival of the 1904 Winton touring car. "There are ten Wintons in use to one of any other make in Boston," said he, "and I see no reason why I cannot keep up this ratio next season."

The Y. M. C. A. automobile school has been a success and was the subject of frequent comment. It has some 300 or more students who embrace employees in the garages, private owners and mechanics learning the new trade and young men fitting themselves for chauffeurs. There are many intending buyers among those attending the school, who take this chance to study automobiles before purchasing them. It

was said that a few evenings before a call for a show of hands of those intending to buy machines resulted in the raising of fifty-two.

W. E. Eldredge, manager of the Pope Mfg. Co., who is an enthusiast over the school, has offered the use of Pope steam, electric and gasoline machines for demonstration and experimental purposes. He says practically all his employees attend the lectures and thinks the school will be a most valuable source of supply of competent chauffeurs and mechanics. Mr. Eldredge said that he expected soon to establish an extensive garage and prophesied a big year next season for the Pope Toledos, Waverleys, Hartfords and Hagerstown runabouts. At the Hartford factory and the Boston branch the latter are awaited with marked confidence in their popularity the coming season.

Although no representatives of either the Grout Bros. or the Pope-Robinson concerns were seen by the Motor Age man, he heard that both factories were busy.

#### TESTING AN EDISON BATTERY

The details of the recent trip of the Columbia special service car from Boston to New York, equipped with the new Edison battery, mention of which was made in Motor Age, have recently been given out by H. M. Wilson, of the automobile department of the Boston Edison Co. Mr. Wilson was formerly with the Electric Vehicle Co., and the trip was made under his direction. The total weight of the Columbia car, without the driver, was 3,150 pounds and running with solid tires all worry of punctures was eliminated.

Mr. Wilson started from Boston on a Tuesday at noon time. Woreester was reached the same afternoon, a distance of 44 miles. In this run a number of steep grades were met. The battery was given a good charge at Worcester, and the following noon the run of 53½ miles to Springfield was begun. A few miles outside of Worcester the ramous Leicester hill was encountered and the battery and the motors did their work nobly, and at 100 amperes discharge rate carried the car to the summit without even hesitating. At one point for a few seconds the motor read 102 amperes.

Then came a delightful run along the high land to Spencer, followed by a long coast till it seemed as if one must have dropped to sea level again. Then came mile upon mile of up and down hill, good roads and bad, and just as one hoped that the worst of it was over a most wretched stretch of miles of soft sandy country road was encountered between West Warren and Palmer. From Palmer to Springfield, a distance of 16 miles, the road is mostly in first-class shape. Springfield was reached at 6:30 that evening with plenty of power left in spite of the long and hard journey.

The battery was given a few hours' charge that night, and the following morning at 11:15 the start for Hartford was made. The run through Longmeadow was pretty, but as the descent was made to the Connecticut river the road became very bad. The river was crossed at Warehouse Point; Windsor Locks









and Windsor were soon left behind, and Hartford was reached at 1:45. Here the battery was given a two hour charge and the journey continued to New Haven, where the car arrived at 9 o'clock in the evening.

A short charge was given the battery that evening, just to warm it up a bit, and the next morning another at a low rate, owing to the poor facilities for charging. The trip was continued to Bridgeport by easy stages, and here another 2-hour charge was given. For some distance between New Haven and Bridgeport the road follows the shore and is one of the prettiest sections of the run. Bridgeport was left at dusk with a slight rain falling, which soon increased to a heavy downfall, and the road became heavy. When Norwalk was reached it was found that the best road to Stamford branched off a mile back and this distance had to be retraced. Stamford was finally reached at 9:30 and the battery given an all night's charge at a low rate.

New York was now only 35 miles away. The intervening towns were passed in rapid succession. Then Jerome avenue, Seventh avenue and Central park west, and the splendid asphalt pavements, and the journey was at an end when the Central automobile station on Broadway was reached. The trip had occupied a little over four days and the actual running time was 24 hours 56 minutes. The return trip to Boston established a record that will probably take a long time to break. The street was reached at 5:45 in the morning and Stamford before 9, although stops were made for coffee and by reason of the East Chester draw being open. A quick charge at a high rate was given the battery. Bridgeport was left behind at 2:30 the same afternoon and at 4:30 the car pulled into New Haven.

Here Mr. Wilson turned the car over to Mr. Sadler of the Edison Storage Battery Co., and after a few hours' charge being given the battery Mr. Sadler started for Springfield, putting in a short charge at Hartford just before midnight. As it was an all night run and Mr.

Sadler had never been over the route the Electric Vehicle Co. supplied a man to show the way. About 4 o'clock in the morning in pitch darkness, the headlight revealed a sharp turn in the road, and before the power could be shut off the occupants of the car found themselves down in a ditch and fast in the red mud.

Vain attempts were made to extricate the ear, but it only settled the deeper, until the hubs of the rear wheels disappeared in the mire. It was then decided that further assistance would be necessary, and a nearby native was routed out of his warm bed and persuaded to hitch up his team of horses. A few minutes later the Columbia vehicle was safe and sound on the highway again, and shortly after sunrise rolled into Springfield, showing plainly the result of being out all night. After another quick charge at a high rate the start was made for Worcester. Mr. Wilson, who had overtaken the machine by rail, and accompanied by W. G. B. Bee, of the Edison Storage Battery Co., then took the car again through to Worcester, which city was reached that evening. The battery was again given a quick charge.

Shortly after 1 o'clock in the morning the car started again, with Mr. Sadler aboard as well, he having caught up with the party. On reaching Framingham Center, the line of the Boston & Worcester cars was followed to Wellesley Hills, then through the Newtons to the Hub, arriving at the Electric Vehicle Co.'s station on Stanhope street at 6:05 in the morning. The total elapsed time on the return trip from New York was 48 hours 30 minutes, and the actual running time 22 hours 52 minutes. Had the motors been geared to higher speed the time would have been furtner lessened, the battery being capable of a much higher rate of discharge. The run is counted most sign. ficant in automobile circles and has demonstrated the great flexibility and durability of battery power for automobile work.

















#### FARMERS ARE FRIENDLY

#### They Meet and Discuss the Automobile, Demanding Only That Which Is Reasonable

Syracuse, N. Y., Dec. 26-The announcement that the Onondaga County Farmers' Club would discuss "The Automobile Nuisance" proved of interest in that it might be of benefit to automobilists who are in the habit of driving over the country roads. The meeting was a time of surprises, the first being the unexpected, well-groomed, intelligent appearance of the members. There were no rubber boots, fur caps, or yarn tippets, and one would never suspect that those present had to hurry through the proceedings to get home in time to do their evening milking. In fact, the gathering might easily have been one of average business men. If the farmers who held up C. Arthur Benjamin with a shotgun and others who horsewhipped J. A. Seitz were there, no one would have suspected it.

"Gentlemen," said President Clark, "the question of automobiles is now before you."

"Mr. President," said Hamlet Worker, of the Town of Geddes, "we must be reasonable about automobile men, and we expect the same treatment from them. I have no grudge against the man who likes to go out into the country with his automobile, but the roads were first built for farmers, and we do not propose to be driven from them by steam engines. Now, if the automobile owners would be reasonable and slack up and stop when they see a frightened horse we would not object, but they go right along as if chased by the devil. We have a law which says you can stop them by holding up a hand. Suppose you have all you want to do to hang on to your horse, how can you hold up your hand? The law provides that each automobile must have a number and have it behind, so one can tell who the owner is. Now, how in the mischief can a man see and remember what the number is when his horse is pawing the air and jumping ditches and fences and making for the pasture? I believe most of the automobile people mean to be fair, but there are always some who like to show off. I wish some of them would tell me why they are always in such a hurry."

Addison Loomis, a wealthy farmer from Cicero, and the chief owner of the Cicero turn pike, a toll road whose charter runs out in 3 years, and will probably not be renewed, was a little more bitter than Mr. Worker. Said he: "I never had much of a chance to ride in an automobile, and I don't want to; consequently I don't know much about them, but I do know that there ought to be a law governing their speed. I don't think they have a right to drive us off the road. Neither would I drive them off entirely, but I would confine them to an ordinary speed. Finally, the horses would get accustomed to them. The way they 90 now, at a mile a minute, would scare an old plow horse. I have seen them go so fast that I was frightened. They ought to have a speed indicator on so we could tell how fast they are

John T. Williams asked, "What's the matter of adopting the block system?"

"What's the block system, any way?" asked Mr. Loomis, and Hamlet Worker explained: "It means keep off the block when you see one coming.",

After a discussion of toll roads, a farmer

suggested that the manufacturers could be prohibited from making an automobile which would run over 15 miles an hour. He thought that in a few years all horses would get acquainted with the machines and everything would be all right. One farmer present pitched into toll roads, asking why he had to pay to ride over some roads and nothing to ride over others that were just as good?

Mr. Loomis generously offered to lay down his charter if the proposed state road goes through. The pike, he said, was built by a company of farmers when the plank road was abandoned and they were all willing to pay

toll for a good road.

"I am glad," said Mr. Worker, "that the farmers are in favor of good roads and also that the automobile owners will help build them, and I hope that when we get them thev will not drive us off entirely. We must be patient and get along the best we can until our horses get so they will not be afraid. In the meantime we will hope that the scorchers will break their necks, leaving only the sensible men. As I said before, we have no grudge against them. It will not be many years before we farmers will own automobiles ourselves to do all our heavy hauling. All we ask is that the people who own them now treat us decently."

When the bill to govern the operating of automobiles is introduced into the legislature this winter the farmers' opinions will be respected, if for nothing else, on account of the votes they bring, and for this reason their views are important.

The farmers' club voted that it was the sense of the meeting not to favor bonding the state for \$50,000,000 for road improvement, but to favor the proposition to raise \$6,000,000 for improving the roads for the next 3 years, \$2,000,000 a year.

#### ANTICIPATING SPEED TRIALS

Anxious to have an early try at the records, a party of automobilists left New York on Saturday for Ormond beach, Florida. The party included O. P. Nestman, who will drive a Stevens-Duryea; Charles Schmidt, who will pilot the Packard Gray Wolf; W. J. Morgan, Florida East Coast Automobile Association; S. M. Butler, secretary Automobile Club of America, with the Mors timing machine; S. D. Waldron, Packard Motor Car Co.; C. C. Hildebrandt, Jr., J. Stevens Arms and Tool Co., and A. G. Batch-

Apart from testing the two cars over the wave-washed course which runs from Ormond to Daytona, on the Florida coast, there will be a careful trial of the new telephone wire and of the Mors timing apparatus to be used during the tournament, which begins on January 26. Nevertheless any records made on the present trip will be accepted, as a sanction has been obtained from the American Automobile

The 25-horsepower Packard will be sent against the existing record of 51 4-5 seconds, made by Henri Fournier on November 16, 1901, and still the best on the slate. An effort may also be made to supplant the 10:26 for 10 miles supplied by Alexander Winton on the Florida course last March. The Stevens-Duryea will try for the middle-weight figures and may also have a try at the honored mark of Fournier. The distance boards and telephone are reported to be in good shape for the trials.

Automobiles and automobile boats can't go side by side very well.

#### SUCCESS NOW ASSURED

#### Cleveland Show Promises To Be a Winner-An "Automobilium" Is Ohio's Latest Word

Cleveland, O., Dec. 28-The automobile show to be held here the week of February 29 under the auspices of the Cleveland Automobile Club promises to be a tremendous success. Blanks for application for space are being sent out by Secretary George Collister. Already many inquiries have been made and these will be taken care of as soon as they come in in regular form. Several things will contribute to the success of the Cleveland show. The affair last year was one of the best local shows ever held. Several of the local manufacturers who remained out last year have already announced their intention of coming in this year. The number of local agencies is larger and in consequence more lines are sold here than last season. Added to these points is the fact that Cleveland is considered one of the very best points in the country for the sale of automobiles, and manufacturers who have no agents here are anxious to secure good representation.

Manager Ralph Owen of the Ohio Oldsmobile Co. did a good bit of advertising for the Olds by repeating his trick of last year in furnishing several automobile delivery wagons to assist Uncle Sam's gray coats in delivering and collecting packages during the week previous to Christmas. Postmaster Dewstoe says the automobile can cover a route about three times as fast as a horse and wagon and he would like nothing petter than to see a number of such delivery cars in use in Cleveland, but as the government makes the mail collectors furnish their own outfits he has nothing to say in the matter. Ralph Owen is looking around for a larger location. The garage at 411 Euclid avenue which has passed out more automobiles than any other two establishments in Cleveland has become too small for the growing Olds business and Mr. Owen will undoubtedly be occupying a larger and more nearly complete establishment before the new season opens up.

Henry Chisholm, of the Champion Rivet Co., son of Wilson B. Chisholm, and Frank Philips, of the Frank Philips Carriage Co., with several of his friends yesterday incorporated a new automobile concern under the name of The Chisholm-Philips Automobitium Co. The corporation is capitalized at \$50,000, and will this week begin the erection of a showroom and garage which alone will cost \$50,-000. The building will stand on the south side of Euclid avenue, opposite Olice street, and will measure 50 by 100 feet. The lot is 65 by 100 feet. The building will be three stories high and according to the plans of the company will be the finest automobile establishment in Ohio. The company's promoters have been planning for some time to build an automobile establishment that will be a source of pride to Cleveland and declare that no pains will be spared to make this new place the very finest possible.

The company will handle three grades of machines, the Peerless; a medium grade selling for about \$1,500, and a \$750 machine. The machines to represent the medium and low priced class have not been decided upon. The company has in its title a new word, "Automobilium." It is original with the incorporators and is intended to convey the idea that the garage will comprise everything that the motorist needs. Ground for the new structure will be broken this week, and the building will be ready for occupancy by the last of March or the first of April.

The new building will make ample room for show rooms, and storage as well, at least for the coming season.

#### CADILLAC PLANT ENLARGED

Detroit, Mich., Dec. 29-Around the big Cadillac plant just now things are booming. Two weeks ago the contractors completed a one story building, 200 by 40 feet. This building is of brick and the installation of machinery for the manufacture of small parts is completed. New Year's day will find the company in a position to turn out many small parts which it has not heretofore manufactured. A building 300 by 180 feet is about completed. The glaziers began work the day after Christmas, and in another month this big building will be ready for the reception of the finished cars of the company. It is to be used for storage purposes only, thus giving the superintendent room to put his machinery and men where the storage rooms were before. Incidentally this big building, with its splendid construction, large windows and fine floor space, would be a great place to hold a show. The company has just purchased a block of ground between Woodward avenue and Cass avenue and this will be used in a short time.

John P. Schneider has secured the state agency for the Peerless company, and is preparing to push his business in both the southern and the northern peninsulas. He may open a branch outside of Detroit at no distant date.

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#### SUIT AGAINST IMPORTER

New York, Dec. 30-The Association of Licensed Automobile Manufacturers has begun suit for infringement of the Selden patent against the American branch of Panhard & Levassor. This rounds out the list of suits to include an importer. It is alleged that discoveries have been made of sales of Panhards to individuals, the story afloat being that the branch has sold and traded cars to several prominent people at prices little if any higher than the wholesale price made to Smith & Mabley. F. A. LaRoche, of the American Darracq Automobile Co., says that he heard at the Paris show a story to the effect that European makers were combining to fight the Selden patent.

#### GASH WITH WANAMAKER

W. D. Gash, a veteran in the cycle and motor vehicle trade, has been appointed general manager of the entire automobile business of John Wanamaker in New York and Philadelphia. Until recently Mr. Gash was the general manager of the Searchmont Automobile Co. and before that sales manager of the Waltham Mfg. Co. Mr. Gash told a Motor Age man that the Wanamaker plans for next season were for the conduct of the automobile department on an unprecedentedly large scale, which ineluded the handling of a varied line embracing several powers and prices. Mr. Gash brings to his new field long experience and wide popularity. What the Wanamaker lines will be Mr. Gash is not yet ready to announce.

The New York Garage Co. has secured the metropolitan agency of the Northern.

#### COLD PREVENTS SALES

#### Capital Dealers Now Simply Waiting for Their New Models — Porter's New Battery Record

Washington, D. C., Dec. 26—With the advent of cold weather the automobile business has taken a slump and sales are few and far between. This is not at all discouraging to the dealers, however, for they have had an excellent year. Everybody is getting ready for the reception of the 1904 models, and all along the line the talk is of the improvements that have been made in the various machines that are represented in this market. Reports are to the effect that there will be few changes in agencies during the next year. Possibly a few more makes will be added, but nearly all the present agencies will be continued.

With the Washington show more than three months off, few spaces remain unsold. Manager Washington is confident of closing contracts for the few remaining spaces during the first week in the new year, and will then devote his time to the detail work of the show. Together with all the prominent dealers he will attend the New York show. The show proposition is regarded as a good trade bringer by the local dealers.

Accompanied by Fred B. Whitney, clerk of the house committee on naval affairs, H. C. Porter, of Chicago, ran an electric automobile 121 miles in 10 hours 32 minutes, or about 12 miles an hour. A. L. Cline, president of the local dealers' association, acted as referee.

A Washington visitor of note this week was Albert L. Pope, the energetic vice president of the Pope Mfg. Co. He has been on a tour of inspection and dropped into the capitol city to see Manager Foss at the local Pope branch. The past year has been an excellent one, particularly in the automobile department, and the plans that are being made for 1904 will undoubtedly put the Washington branch on an equality with the leading automobile establishments in the country.

At the garage of the National Capital Automobile Co. on Eighteenth street, there has been some talk of erecting a large garage down town. This company has had a good year's business and it is thought a garage in the business section will give it an opportunity to get a still larger slice of trade. There has recent'been a change in the personnel of this company. Frank Libbey, who has been acting as manager, having been promoted to the position of general manager of the sales department. Mr. Libbey's old position is still open and will not be filled until some time in January. The Oldsmobile, Peerless, Packard and Pierce will constitute the company's line next year.

#### RACING RULE REVISION

New York, Dec. 28—Chairman Pardington, of the A. A. A. racing board, is wisely taking time by the forelock in the matter of a revision of the racing rules in accordance with the demands of last season's experience and the suggestions of men prominent in the track racing game as competitors and promoters. Mr. Pardington has sent out a circular letter asking for written suggestions from Osborn W. Bright, Foxhall P. Keene, W. K. Vanderbilt, Jr., Alfred Reeves, Harlan W. Whipple, F. A. La Roche, Alexander Winton and others as to desirable amendments to the rules. It is possible that

when all the proposed amendments are submitted these gentlemen may be asked to meet the racing board in conference for a verbal discussion of mooted points.

Alfred Reeves, promoter of the Empire City track meets, who made the original compilation of track records for the Mail and Express, has just completed for Chairman Pardington's final approval and revision a complete table of track and straightaway records for the A. A. A. handbook.

Members of the American Motor League, who happen to have had to do with cycle racing and to some extent figure as automobile racing critics of the new game through present daily and weekly journalistic connections, are amused at the efforts of certain newspaper enemies of the A. M. L. to build in this chance relationship a bugaboo of an alleged attempt to be made by the A. M. L. to seize the automobile track racing control and place these men in the saddle. The utter lack of foundation in the story may be judged from the close and friendly relations of the men, against whom the innuendoes are apparently directed bear to Chairman Pardington, and the readiness they have always shown to lend him their assistance and advice whenever called upon.

"We have troubles enough of our own," said one of them laughingly, "in attending to our writing without desiring to put on our shoulders any of the anxieties our experience with cycle racing matters teaches us must fall to the lot of poor Pardington. Joking aside, it would seem to be the part of very ill-advised friends of the A. A. to antagonize men who are giving its present eoffrts and accomplishments all help and publicity. If any A. A. A. officials sanction these attacks their inexperience and lack of diplomacy are, to say the least, not encouraging."

#### MOTOR CYCLISTS NOMINATIONS

New York, Dec. 28—With the exception of Captain Miller all the nominations for officers of the New York Motor Cycle Club are new. The acting riding contingent have been named for the offices as follows: President, M. E. Toopel; vice-president, Edward Malloy; secretary, John E. Oest; treasurer, R. H. Nickerson; directors, E. L. Ferguson, Dr. F. A. Roy, C. W. Mason, Henry Clade; captain, D. L. Miller; first lieutenant, A. T. Bendix; second lieutenant, H. Jehle; delegates to associated cycling clubs, Will R. Pitman, George P. Jenkins, Roland Douglas.

#### GETS EXCLUSIVE AGENCY

New York, Dec. 29—Mr. La Roche and Mr. Cook, of the American Darracq Automobile Co., brought back with them from the Paris show on their arrival by the Kronprinz Wilhelm last Wednesday a contract for the exclusive agency for the Darracqs in this country.

It is very generally assumed that now that the American Darracq Co. has secured an exclusive agency it will apply for and be admitted to membership in the importers' branch of the A. L. A. M.

#### COMMERCIAL TEST IN SPRING

In the face of the destractions of the shows and the Florida races the A. C. A. has found it impracticable to promote its commercial vehicle tests in the snow, ice and mud of February, as originally intended. The date is now announced at March 15-16, when it is believed that the chances are fair for the strenuous weather and road conditions desired.

#### LOOKING FOR RESULTS

#### Experiments With Twenty-four Passenger Electric Bus—Automobiles Help Cycle Factories

Hartford, Conn., Dec. 28-An experiment which the legion of automobile enthusiasts, traction managers, and the public will watch with no little interest is the introduction of a twenty-passenger inside and six passenger outside electric bus as an auxiliary service to a street car system, isolated in a hilly country, and where the roads are none too good. In cities little importance would attach to such an innovation, but the test now in progress connecting the village of Terryville with the Pequabuck terminal of the Bristol & Plainville Tramway Co. is the cynosure of automobile gaze. The country is mountainous and the route 10 miles long. The company has purchased from the Electric Vehicle Co. a second hand vehicle which was built to exhibit in the Buffalo exposition. Frequent opportunity to charge the vehicle is allowed, and it is expected that the Exide batteries, with which the vehicle is equipped, will stand up and give good service because of the frequency with which its cells can be charged. The vehicle will be operated by one man, who will collect the fares as well as drive the vehicle. This will be a saving over the cost of car operation. The same service has previously been supplied with horse-drawn vehicles. The highway over which the vehicle will run is for the most part excellent, containing a long stretch of state highway, but there are several had stretches. If the service is successful it is likely that it will find introduction in other places since it dispenses with the necessity of heavy expenses incident to track laying and repairs.

"We are employing 700 hands at one present time, and by the first of March I expect to see the Columbia bicycle factories with more than 1,000 on the pay roll, with an even larger number in force as the months continue until a year from now I anticipate 2,000 men busy, as in the old bicycle days, ' said Manager Charles E. Walker, of the Pope Mf. Co. "Automobiling will do this," he continued. For some months since work has been quietly progressing at the old Columbia bicycle plant, which should not be confounded with the Electric Vehicle Co., which makes Columbia automobiles, the title being transferred to the company which succeeded to the plant established by Colonel Pope some 10 years since. Harold H. Pope, son of the bicycle pioneer, has had charge of the development of the car made in this factory, which is a gasoline runabout with light tonnéau attachment. The Hagerstown, Md., plant, formerly the home of the Crawford cycle, is also at work upon an automobile runabout. This vehicle is much like a de Dion in appearance, with a wheel steer on a central upright standard, to which is affixed the control of the spark and mixture. The vehicle is equipped with wood wheels and is hung rather lower to the ground than the vehicle built in the Columbia factory. It will be an ideal vehicle for both city and suburban use where good roads are found. The big touring car of the Pope Mfg. Co. will be the Toledo. Full pages in the January magazines display this car, which is sold in the east from Hartford.

When a Motor Age representative visited the office of the Hartford Rubber Works the

day before Christmas the atmosphere was characteristic of the holiday season. The establishment was being decorated with holly and all the employees were helping in the work. When they left for the noon hour President Lewis Parker presented each with a turkey and a dozen oranges in a paper bag tied with a colored cord on which were a sprig of holly and a card extending the compliments of the season in the name of the company.

#### AUTOMOBILE SCHOOL A SUCCESS

The first preliminary examination given to the students of the automobile school of the Boston Young Men's Christian Association was held Saturday evening, December 19. Nearly a hundred students presented themselves for the examination and the management was very much gratified to find how well the questions were answered. One student, who was in the wholesale business and had absolutely no experience with mechanism of any kind, succeeded in securing 75 per cent in his paper. The examination was given quite as much to aid the management of the school in ascertaining whether the methods employed were correct as to learn the degree of efficiency acquired by the students.

Another examination upon steam vehicles and repairs will be given later and a thesis upon any type of steam carriage has been called for February 1 to deal with one type of carriage and be treated exhaustively.

Arrangements are being made for increasing the accommodations of the school and securing more adequate equipment. The following ears have been secured for dissection in the gasoline course and will be studied in detail and later assembled before the class: The Crest and Cadillac for the light runabout type, and the Toledo and one other for the touring car type. Preparations are being made for the exhibit at the time of the automobile show and the school will show sketches and blue prints of the different classes in session and some of the written work by the students, also views of the courses studied and the details of the printed matter employed. The idea of an automobile school seems to have caught the popular fancy and doubtless such schools will be established throughout the country,

#### PICARD JOINS DARRACQ FORCES

By taking unto itself A. L. Picard, who will act as general sales manager and assistant to F. A. La Roche, the American Darracq Automobile Co. of New York is believed to have made a valuable acquisition to its organization. The announcement was made last week, just after Mr. La Roche returned from Europe, and the news will be well received by automobilists generally and the trade in particular. Mr. Picard resigns a responsible position with the United States Steel Corporation in order to join hands with Mr. La Roche and the Darracq firm.

Race meet following all over the country will remember Mr. Picard as the hustling clerk of the course who contributed so largely to the successful running of the meets at Detroit, Cleveland and Yonkers. His thorough knowledge of the game, his wide acquaintance among racing and pleasure motorists and his unfailing courtesy makes him a valuable adjunct to the Darracq forces.









#### COAST TRADE HOLDS UP

#### Many A'dvance Orders Already Booked and Inquiries On the Increase—New Samples Arrive

san Francisco, Cal., Dec. 22-The year now closing has been a prosperous one for the National Automobile Co., which started in the fall of 1902. The first quarters were at 26 Fremont street but the business increased so rapidly that the company was obliged to look for a larger building. In June of the present year the company removed to the new fireproof building at 134-148 Golden Gate avenue, just above market, where it is now located. The National now has the agencies for the Knox, Toledo, Rambler, Haynes-Apperson and Franklin. It has agencies for these machines in ad the various cities on the Pacific coast. The magnitude of the business is shown by an order of twenty-five of the Knox touring cars for spring trade received last week from Norman W. Church, of Los Angeles, the largest dealer in Southern California. It also reports the sale of six large four-cylinder Toledos for early spring delivery.

A sample of the new Jones-Corbin car has been shipped by express to the Pacific Motor Car Co. which has the agency of the Jones-Corbin Automobile Co.'s products. A carload is following the sample by freight, and the sample is due to arrive at the office of the Pacific Motor Car Co. in a few ways. The company has added to its line of cars the Crest. The new 1904 St. Louis tonneau cars are expected daily and the new four-cylinder Model L Packard will arrive by express early in January.

The Pioneer Automobile Co. has already received orders for fourteen 1904 Winton touring cars and this is considered phenomenal when it is understood that they have not as yet received a sample of this machine.

The dealers of San Francisco and the coast generally should form an association. A few meetings would show the fact that much of the senseless antagonism could be eliminated

The Mobile Carriage Co.'s sales rooms has been the center of interest of enthusiastic automobilists during the past week. The Pierce Arrow touring car has arrived and it is considered the most stylish yet seen on the coast. Frank E. Hartigan, the manager, has gone to Los Angeles to open a branch house at that point, where the same line of cars will be handled as in San Francisco.

#### NEW YORK SHOW

About fifteen exhibitors who have been waiting for space at the New York show have been assigned to the upper tier of boxes. This makes a total of 170 exhibitors.

Special accommodations have been asked for by the Mack Bros. Co., of Brooklyn, N. Y., to exhibit its fifteen passenger automobile, which is said to be one of the largest machines in America. It is built with three cross seats, each seating three people, while the tonneau accommodates six passengers. The car is equipped with a four-cylinder gasoline engine.

The Caldwell Lawn Mower Co., of New burgh, N. Y., will exhibit a steam lawn mower which cuts a swath of 40 inches. It is equipped with an 8-horsepower steam boiler and engine and will travel 8 miles an hour. The machine weighs about 3,000 pounds.

AUTOMOBILE

#### THE SANTOS-DUMONT

The Columbus Motor Vehicle Co., of Columbus, O., has entirely departed from its previous practice in the design and construction of its 1904 model of the Santos-Dumont, having brought out a light touring car driven by a four-cylinder vertical air-cooled motor placed on the front of the running gear, under the conventional bonnet. The car is longer and, generally speaking, bigger and more powerful than the preceding model and comfortably seats five persons. In power, body design and size, the car is one of the largest air-coolers made.

The frame is of angle steel, shackled to half-elliptic springs of more than ordinary length and width, the rear springs being 45 inches long and 2 inches wide, and the front springs 42 inches long and 2 inches wide. The frame angles are tapered toward each end, to put the strength where most needed.

The maker claims that the motor has an unusual amount of radiating surface on cylinders, each cylinder being said to have 650 square inches of radiating surface, making 2,600 square inches for the four cylinders. The cylinders are of 3%-inch bore by 41/4-inch stroke, and are said to develop 20 horsepower.

Bom the inlet and exhaust valves are mechanically operated, the exhaust being placed on one side of the cylinder, the inlet on the opposite side. The spark plug is directly over the inlet to receive the benefit of the incoming gas which tends to keep the plugs cool and free from soot. All valves are interchangeable, and are easily accessible. Each has an adjustment device on its stem whereby it can be adjusted to lift exactly the same as the others, even after the cams have become worn.

The eams, cam shafts and valve gears run inside the crank case which is of aluminum, and are lubricated by the splash system. The bearings are all long and of a special bearing metal, with means of adjustment. The crank is a steel forging and the connecting rods are also made of steel forgings. Each set of cylinder heads and cylinders is cast in one piece, there being no gaskets in the engine.

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The carbureter is of the float feed variety. The admission of gasoline to it is by a needle valve and remains fixed. The throttle arrangement is operated by a foot button with an additional lever on steering post that may be used if preferred. The proportion of gas and air are said to remain the same when throttled at low or high speed. Jump spark ignition is used and the current is supplied by two sets of batteries. Each cylinder has an independent coil and the four coils are mounted on the dash in a mahogany case, within convenient reach of the operator.

The power is transmitted from the engine to the transmission gear by bevel gears and a shaft, the gears being encased in an oil-tight ease. The sliding gear transmission set is placed cross-wise of the car directly under the driver's feet. The main shaft of the gear runs on roller bearings at each end and a metal bearing in the center. The gears are all of steel meshing with bronze gears, and all are of large diameter and pitch, and wide face. There are three speeds forward and reverse. operated by two levers. The speed changing gears are all loose on their shafts, and are fitted with internal expanding friction rings, one giving each speed. All gears not in use are



The Santos-Dumont Motor

The expanding rings are opperfectly free. erated through ball and socket joints, tending to make the operation of them free from binding. The whole gear is encased in an oiltight aluminum case with detachable cover.

The final transmission to the rear axle is by roller chains, running from large sprockets. The axles, both front and rear, are mounted on roller bearings. The rear wheels are fitted with powerful internal expanding brakes, one on each wheel. The wheels are 30 inches in diameter and are fitted with 31/2-inch clincher

All parts of the motor, transmission gear and other fitted parts are said to be actually interchangeable. All parts are numbered and described in a catalogue to facilitate ordering

#### WILL PUSH F. I. A. T. CARS

By casting their anchor into the automobile sea, Hollander & Tangeman have caused something of a ripple and since their arrival at 5 West Forty-fifth street, just off of Fifth avenue, New York, the F. I. A. T. car has received much advertising. The two young men have the exclusive American agency for F. I. A. T. machines and are both well known in the automobile trade of this country and Europe. Mr. Hollander was the French agent in Paris last year for the Italian machine and disposed of something like twentyfive cars during the season. He is the son of L. P. Hollander, the well known dry goods merchant of Boston, Mr. Tangeman has been prominent figure in American automobiling for years. He had a clean score on the New York-Boston endurance run, only to meet with a slight accident half a mile from the finish, which gave him a bad mark. He was the owner of the first F. I. A. T. car brought to America. Apart from pushing the F. I. A. T. automobile

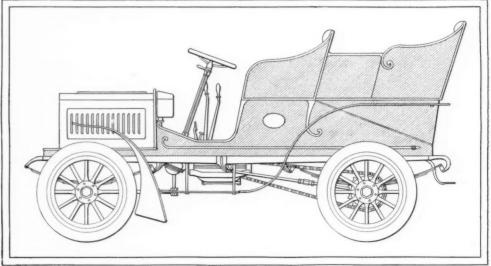
in this country, the new firm will also equip boats with F. I. A. T. motors. They have already posted \$500 and have practically arranged for a match race between their boat now being built by the Electric Launch Co., and the Vingt-et-Un, owned by Smith & Mabley.

To the Motor Age representative, Mr. Tangeman talked enthusiastically of prospects for next year. "In the first place," said Mr. Tangeman, "it will be the purpose of Mr. Hollander and myself to sell F. I. A. T. machines solely on their own worth. We shall do likewise with the motor boats. Both machines and boats will be guaranteed to go a certain speed and if they don't make that speed the purchaser is not obliged to pay his money. We know pretty well what speed can be supplied by F. I. A. T. motors, especially in the motor boat line; for the home factory at Turin, Italy, was the first maker of high speed motor boats for the Italian navy.

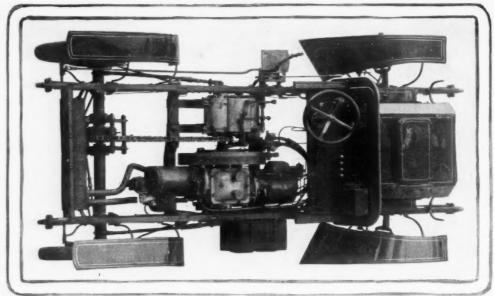
"The car we represent in this country is well known to the average automobilist, although it has been difficult to get many of them from abroad. Now, however, the F. I. A. T. factory is in a position to turn out three or four times as many machines as last year, when it built about 300, and at least 100 or 150 cars should come to America. The new factory at Turin occupies three city blocks and is filled with American machinery. About 900 workmen are employed.

"There are so many new and good things on the new product that it is difficult to know which one to speak of first. Naturally a car should have great strength, and that brings to mind the new pressed steel frame. The wheels are of the artillery pattern, with ball bearihubs, while the springs are of the finest steel, made on the semi-elliptic order. The gasoline tank lies between the rear wheels and has a capacity radius of 300 miles. The clutch is a duplicate of the Mercedes. Ignition is by magneto, requiring no batteries or coils even in starting. Not alone are there ball bearings on all the wheels, but also in the gear case

"A new cut in the valve increases the volume of gas taken into the motor so that much greater power is obtained than heretofore. Last year a 24-horsepower motor developed 30 horsepower, while on the latest types of machines with the new design of inlet and exhaust valve about 35 horsepower is supplied. The foot pedal is still used for regulating the gas, the spark, the admission and exhaust



The Santos-Dumont Touring Car



MOTOR AGE

Plan View of Stearns Chassis

valve. There are no levers on the steering wheel at all and it is so simple to handle that we are trying to get a one-armed billiard player of this city to drive the car and prove its simplicity so far as handling is concerned.

"The sliding gear system is used, with

"The sliding gear system is used, with four speeds forward and a reverse. It is so constructed that the reverse cannot be thrown in until the car is at a standstill, thereby lessening the chance of stripping gears. honeycomb radiator is manufactured under the Daimler patents. Our purpose when selling machines-and, by the way, this is a matter that Mr. Hollander and myself have strongly advocated-is to give the buyer the option of taking one of four different types of body. The best known are the King of Belgium, the King Leopold and the Princess Loetizia. The last named is entirely original with the Italian people and is certain to meet with general favor. It is roomy without being cumbersome.

"On the matter of automobile boats I think our concern will prove its leadership, especially as regards speed. Boats which we have ordered built will average about 35 feet long and will draw about 7 inches of water. They will be fitted with F. I. A. T. motors of 24 horsepower. I might mention the fact that we hope to bring to this country next summer the 54-foot boat which the F. I. A. T. company is building for the Monte Carlo regatta. It is fitted with three four-cylinder motors, each of 60 horsepower."

Hollander & Tangeman are to have charge of the automobile and marine motor exhibit of the F. I. A. T. company, which will occupy some of the space the Italian government has taken to show the product of its industries at the St. Louis exposition. For their home, or rather for the home of the F. I. A. T. car, they have selected an excellent location at 5 West Forty-fifth street, just off of Fifth avenue, and in the very heart of New York's finest residences. The place was formerly a private stable of Browning, the clothing man, and is without doubt the handsomest home for power-driven machines to be found in the country.

#### THE 1904 STEARNS CAR

The F. B. Stearns Co., of Cleveland, O., is issuing a catalogue describing and illustrating its new car for 1904. The car will contain several features new with the Stearns people and claimed to be wholly original. The ma-

jority of the new features were embodied in the ear which took part in the New York-Pittsburg endurance contest, and which later made a remarkable run back to New York over the same route. In fact the experience of the run had a great deal to do with the adoption of this experimental car as the regular 1904 model.

Mr. Stearns has published the statement that he used but 3 gallons of lubricating oil on the entire trip. He claims this was made possible by a new and novel system of lubricating which dispenses with the oil pump formerly used. The rew system takes advantage of both the pressure generated by the water circulating pump and suction derived through the use of an air-tight crank chamber. An oil tank capable of holding 2 gallons of oil is hung at one side of the frame, and a tube from the water circulating system is connected with the bottom of the tank. On the principle that oil and water will not mix, the water pressure is sufficient to give considerable impetus to the oiling system. A check valve prevents the oil from flowing into the circulating system when the pump is not in operation, and when the pump is running the water is forced into the bottom of the oil tank and the same pressure is maintained in the tank as in the balance of the circulating system.

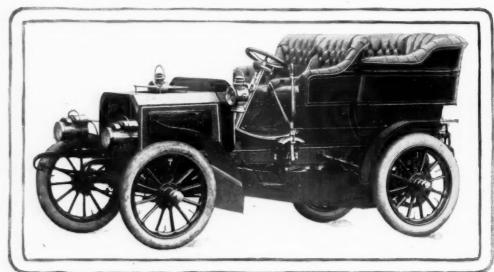
The oil is fed to six sight feed glasses in the dash, and these may be adjusted so that the operator has the lubricating system in plain

sight and under constant control. The supply, of course, varies according to the speed of the machine. Tubes from the sight feed glasses lead to the two cylinders, crank bearings, main bearings and secondary bearings. The flow of lubrication is made doubly sure by suction from the crank chamber, which is rendered air-tight by a ground fitted cover packed with leather. Each oil tube has a ball check valve at the point where it enters the crank chamber, which prevents back pressure. It is claimed that either source of energy is sufficient to insure perfect lubrication. The crank case is provided with a pit in which a constant oil level is maintained, and the gears are also run in oil.

An important change has been made in the atomizer. The air enters through a butterfly valve at the side of the atomizer, which is cup-shaped and provided with a screw top, and passes downward through an air tube. The gasoline enters through a 1/8-inch tube at the lower portion of the opposite side, and passes upward in the small tube through the center of the air tube. The air, passing in one direction, and the gasoline, spraying in the other, are thoroughly mixed in suspension in the upper portion of the chamber. The throttle valve controlling the mixture is also of the butterfly type, and is connected with the air valve, both being connected with the same lever and operated by a foot button, so that the proportion of air is automatically varied according to the mixture required.

The springs are 44 inches long, instead of 40 inches, as in the 1903 car, with seven leaves 2 inches wide, made of a special composition steel. They are placed outside of the frame instead of below, and in consequence it has been possible to lower the entire frame 3 inches. It is claimed the riding qualities of the car have been much improved by the changes. The front spring suspension on the Stearns car has been criticized from the fact that the spring is put in compression by placing the loose link in front instead of in the rear, as in ordinary practice. After using this construction for the past year the makers claim they are prepared to demonstrate that it is correct practice, on the ground that it makes the connection between the knuckle and the steering arm rigid at all times and increases the ease of handling the car on rough roads. Mr. Stearns states that this feature of his car was much commented on by observers in the recent endurance run.

A new contact breaker is another feature. This is placed at the side of the motor below the frame, and it is accessible from the out-



MOTOR AGE

The 1904 Stearns Car

side of the car. The secondary shaft of the motor extends through the side of its case and a cam is placed on this extension. The cam is a round drum, with two notches cut in so that contact is formed for one cyclinder independent of the other. Two rocker arms are used to form the contacts, the forward arm for the forward cylinder and the rear arms for the rear cyclinder. They are held toward the face of the cam by a spring, which is adjustable as to tension and securely fastened by lock nuts. The rocker arms and cams are grounded and the contract is formed half way between the cam and the lower support. When a rocker arm drops into a notch, a projection on the arm strikes an insulated plate, which completes the circuit for its respective coil. The contact points on the rocker arms are adjustable and can be lengthened to take up wear and to regulate the time of sparking. Guides cut into the framework of the device prevent the rocker arm from rattling loose and out of position. The spark coils and vibrators are of a well known French make and the case containing them is placed on the dash.

The intake and exhaust valves are made much larger than heretofore, but the lift is shorter, a heavier and larger spring being used. The valves are set into the chamber with a ground fit. By removing two bolts and removing the housing, the intake valve may be lifted out with the fingers, then, by loosening a spring controlling the action of the exhaust valve, the latter, which is directly back of the intake valve, may be removed through the same aperture.

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The wheel base of the car is 96 inches and the frame is 11 feet long. The frame is of the wood armoured type, consisting of two plates of steel, with wood in the center and fastened with numerous rivets. It is tapered on both sides at the ends. The motor is hung almost exactly in the center and is suspended on two cross arms, which are riveted and babbetted in place. The Stearns people have always favored the plan of hanging the motor in the center, one of the chief advantages claimed being that in case of front-end collision the vital mechanism is not liable to serious injury, and the expense of repairing the car is not great, as the center portion of the frame and the main shaft almost invariably remain

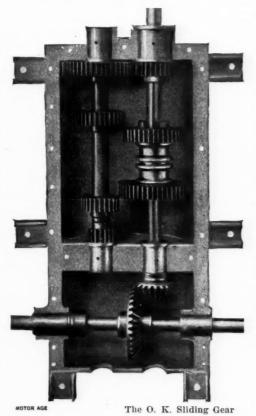
The Stearns motor is of the two-cylinder opposed type. The cylinders are separate and interchangeable and are connected with the crank case by bolts. Cylinders are copper jacketed. The cylinders are slightly larger than heretofore and the speed possibilities have been increased, but the Stearns company is rating its car at 24 horsepower as heretofore. The cylinders have an area of 325 cubic inches and figuring by the French method of 10 cubic inches to a horsepower, the rating of the car would be 321/2 horsepower, which experiments with the motor have proven to be about correct. The car weighs 2,800 pounds in loaded condition, and under the French method this would figure considerably more than 1 horsepower per 100 pounds.

The crank case is aluminum, made in horizontal halves. By removing three bolts from each cylinder and the bolts that hold the crank case together, the upper half may be lifted off and the main bearings removed and replaced without disturbing any other part of the car. This renders the work of renewing the main bearings a comparatively simple operation

that may be accomplished by any ordinary mechanic in a couple of hours.

The crank shaft is of open-hearth forged steel, with an 8-inch flange on the fly wheel end, to which the fly wheel is bolted. The transmission shaft is bolted to the crank and the bolts run through the fly wheel and the crank flange. But one clutch is used, which acts directly upon the rim of the fly wheel, This is operated by means of a cone and two fingers which tighten a steel band with leather upon the outside surface. The transmission consists of three sets of gears, the direct drive being upon the high speed gear. The first and second speeds and the reverse are obtained through sliding gears, and two levers are used. Drive is by heavy roller chain direct to the live rear axle. The rear sprocket operates in connection with the beveled gear differential. The front axle and steering knuckles have been made much heavier than heretofore.

The circulating pump is of the centrifugal type, operated by roller pressing against the fly wheel face. It is adjustable by means of



a spring. The radiating coils are in the front of the machine, and consist of ¼-inch copper tubes, twelve layers wide and fourteen layers deep, held together by flanges. A tank partitioned off for gasoline and water is located back of the radiators. It has a capacity of 4 gallons of water and 18 gallons of gasoline.

The throttle and sparker are controlled from a quadrant below the steering wheel, convenient to the driver's hand. On the dash is a gauge, showing the rapidity of the amount of pressure in the circulating system, and a grease cup supplying the lubrication for the transmission; also the oil feed glasses and the spark coils heretofore mentioned.

Archibald wood wheels are used, and the size of the rear wheel has been increased to 36 inches, and 4½-inch tires are fitted. The tonneau holds four people comfortably. The seat on the door has been abandoned as being inconvenient. The body is made of light bent wood, linen scrimped inside and out, and a high piano finish is obtained by the use of not fewer

than eighteen coats, hand rubbed. Work on agents' sample cars, and those for the shows, is being rapidly pushed.

#### THE O. K. SLIDING GEAR

The O. K. Machine Works, 77 Ellicott street, Buffalo, N. Y., is introducing a three speed forward and reverse sliding gear transmission which furnishes speed ratios of three to one on the high speed, six to one on the intermediate speed, twelve to one on the low speed, and eighteen to one on the reverse drive, these ratios being estimated on the basis of a final drive reduction between the counter shaft and rear wheels of three to two—that is, a twenty-tooth sprocket driving to a thirty-tooth sprocket.

The motor is coupled to a shaft which projects out of the front end of the transmission case. The other end of the other section of this shaft is fitted with a rigidly attached bevel pinion which meshes with the bevel gear on the cross counter shaft. Inside the case the main shaft carries a rigidly mounted spur pinion and two sliding gears mounted together on a sliding block, with actuating connection groove between them, and a four jaw clutch on the end adjacent to the fixed pinion, which carries the other member of the jaw clutch. When through the medium of the shifter rod the sliding gear set is drawn over until the clutch is engaged, the gears and their member of the shaft rotate with the motor shaft and drive the cross counter shaft directly, the secondary shaft of the speed change set rotating idly. Moving the sliding gears backward, so that the train of gears composing the first four on the two shafts are in engagement, furnishes the medium speed; moving them still further back, until the other of the two sliding gears engages the next of the secondary shaft gears, furnishes the low speed, while still further movement in the same direction brings into engagement the reverse train of gears, this train including the usual idler pinion to reverse the rotation.

The gears are all turned from steel, said to be of high carbon grade and carefully hard-ened. They are cut to No. 8 pitch and have 1%-inch face, intended to stand up under the transmission of power from a 20-horsepower motor. All gears have beveled edges to render the sliding engagement easy of making. In the case of the bevel gears both may be of steel or the pinion of steel and the gear of brass, as desired by the customer. Both are of 1½-inch face, six pitch and of twenty-one and forty-two teeth respectively. If desired the counter shaft gear may be fitted onto a differential gear so that the transmission set may be used with double chain final drive.

The company also makes a smaller and lighter gear for use with motors up to 10 horsepower, and a larger gear suitable for cars having motors of from 20 to 40 horsepower The 20-horsepower size weighs 108 pounds, with an aluminum case.

#### SYNNESTVEDT ELECTRICS

Early in the present year Paul Synnestvedt, president of the Synnestvedt Vehicle Co., of Pittsburg, Pa., forsaw what he believed an immense field for the commercial automobile, and believing electricity to be the simplest power for such purposes, made designs for several machines. At present four types of cars constitute the line, but more will be added as needed to meet a reasonable demand.

The opera bus has a seating capacity for



MOTOR AGI

The Synnesvedt Passenger Bus

ten people, and although weighing 3,500 pounds has a radius of 50 miles. The motor has three forward speeds, giving approximately 5, 9 and 13 miles an hour, and two reverse speeds. The batteries are distributed under the hood and the rear seats.

The passenger bus is for twelve people, with practically the same radius and details. A machine of this type, the company states, has been run 3,000 miles in passenger service in Chicago and the cost of repairs has been practically nothing.

The delivery wagon carries a ton and weighs 3,300 pounds. It is roomy, as the batteries are carried under the body and seat. This machine is built for heavy work.

The tonneau has a radius of 50 miles, is fitted with four speed, 5, 9, 13 and 18 miles, and weighs 2,400 pounds. It has a top and glass front, which can be raised. This machine seats six people and the back seat may be reached through a door in the rear or through the front. For city use, at least, the company believes this machine will find ready purchasers because of its ease of operation and large radius.

Mr. Synnestvedt has devised a differential gear and direct drive which he says has proved most effective and reliable. The driving gear has single reduction. The motor shaft extensions are fitted with sprockets, which are in line and connected with sprockets on the wheels by a Morse chain, the differential being on the main shaft.

A device is employed for adjusting the chain without interfering with the driving mechanism. A spring nose for the motor is employed, being pivotally secured at one side about the driving wheel axle. The motor is of the railroad type, enclosed in iron, having four poles and, it is claimed, slow speed with great torque.

In the mounting of the motor shaft a continuous inner driving shaft is employed, being supported at its extreme outer ends beyond the chain by bearings which are integral with the bearings which support the sleeve on which the armature is mounted, thereby assuring alignment.

The driving connection between the armature sleeve and the central shaft is by a spur gear differential, which is enclosed so as to be protected from dirt and reduce the friction, the spur gear differential being mounted between one of the armature sleeve bearings and the adjacent outer end of the central motor shaft.

The company has offices in the Frick building and is guided by Mr. Synnestvedt, the president; C. K. Hicks, secretary and treasurer, and H. P. Childs, sales manager.

#### THE LA ROCHE RACER

F. A. La Roche, of the American Darracq Automobile Co., of New York, has become so enamored of track racing that he has designed and is now having built in the Darracq factory in France a racing monster suitable for any kind of speed work, but especially intended for fast track work. The illustration of the car is made from a drawing furnished by Mr. La Roche. The car is to be driven by two four-cylinder motors, each separately governed, but so coupled that the governors interlock in action to cause the motors to run synchronously; yet, uncoupled, each motor may

be used independently to drive the car. One motor is at each end of the car to distribute the weight evenly, which, Mr. La Roche thinks, will aid materially in rounding track curves. For the same reason the driving shaft and transmission mechanism is placed on the left side of the car to assist in holding that side down, all track turning being toward the left.

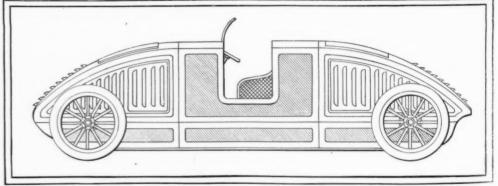
The running gear frame will be of pressed steel, with the front and rear ends of the side bars turned upward. This construction is used to hang the frame low-2 inches above the ground with tires inflated-so that should a tire burst when the machine is traveling at fast speed the tendency will be toward sliding rather than toward overturning. Another precaution against accident caused by tire bursting is a supplementary rim of metal on the inside, of the wheel and but about 1/2-inch smaller in diameter than the inflated tire. It is presumed that should the tire suddenly be come deflated this rim will support the wheel. These extra rims will be on the outside of the right hand wheels and on the inside of the left hand wheels, the purpose of this disposition being to allow the steel tires to take part of the extra load on turns, caused by the side pressure and consequent partial flattening of the tire.

The brake equipment still further carries out the idea of safety, there being a band brake on the driving shaft and on each of the four wheels. The rear brakes will be of usual construction, while the front wheel brakes will be actuated through a coupling that renders them operative no matter at what angle the wheels are set at the time of brake application. The intended method of brake application at high speed is to apply the rear brakes first and then the front brakes more gradually, that skidding of rear wheels may be avoided.

The steering gear will be double throughout, with double compensating bar. All of the motor and transmission controlling mediums will be grouped about the wheel.

Mr. La Roche also contemplates equipping the car with an interchangeable touring body of peculiar elegance of appointment. He says touring with the car will be possible, as it will be equipped with a sliding gear transmission set. The car is expected to be completed by May 15.

An electric livery and charging station is being built by A. D. Perkins at Cottage Grove avenue and Fiftieth place, Chicago. The building is two stories, with 60 feet front on Cottage Grove avenue and extending back 100 feet. Electric automobiles will be kept for hire, and owners of machines in Kenwood may have their batteries charged and cars stored there. Mr. Perkins was formerly business manager of the Woods Motor Vehicle Co.



MOTOR A

The La Roche Racer



#### PROPOSES A LONG CRUISE

John J. Camp. of Seattle, Wash., proposes a trip which will equal, if not exceed, the long cruise of Thomas Stevens in a small launch some years ago. Camp will start from Seattle in an 18-foot gasoline launch of light construction, yet substantially built, and follow the California and Mexican coast to Panama. If this part of the trip is made with no great danger and gasoline can be procured along the South American coast, he will proceed southward, round Cape Horn, and follow the Atlantic coast all the way to the St. Lawrence river. He will then go up this stream, through the Great Lakes into the Mississippi, up the Missouri to the head waters, thence portage across the mountains and reach the Snake river. This will take him into the Columbia river and to the coast again, where he will be near home.

Possibly he will decide to cross the Isthmus of Panama by rail and follow the coast of the Gulf of Mexico and the Atlantic to New York, and then go up the Hudson, through the Eric canal and into the Great Lakes. Whichever route taken he will probably not only have an interesting and dangerous trip, but will know more than when he started away.

#### THE DORY IS POPULAR

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The demand for a small, light and reasonable priced power boat has led several of the eastern makers to fit gasoline engines into the type of boat known as the dory. The dory was at one time an ideal fishing craft and much used with sails. It is light, a most capable sea craft, and has lines which give it remarkable speed considering the size. The boat itself can be put up for a comparatively small sum, and when about 17 or 18 feet long and fitted with a 2-horsepower motor of the two-cycle type, is put on the market for less than \$150. It not only answers the purpose of many who want something cheap and to use only a few weeks during a season's outing, but has the distinction of being more speedy and a better sea boat than many of the full-fledged sma!l launches.

#### CATAMARAN POWER BOAT

A westerner who built a catamaran power boat has been considerably disappointed in his expectations, which were that it would exceed anything of its size in the matter of speed. The boat was exhibited and run about Chicago waters during the latter part of the season just ended, and while remarkably steady in a fairly good sea, did not develop the speed its appearance would indicate or its builder expected. It was 30 feet long, with the individual boats placed some 10 feet apart. Each boat was made from tubular steel, about a foot in

#### AUTOMOBILE BOATING

diameter in the center and graduating to a sharp point at either end. A steel frame work was supported between and above the two cylinders, and strongly braced in all directions. The metor, a double, vertical cyclinder, was located almost amidship, which, on account of its height from the water, gave too much pitch to the shaft. Each boat was equipped with a rudder, the two acting together. The motor was rated at 10 horsepower, but was not rigged to run at its normal speed and therefore fell short somewhat. The boat would make about 8 miles an hour, while the builder, Mr. Sharpneck, had expected fully double that speed. This winter he is fitting not only a larger motor, but is place ing it further forward and anticipates much better results.

#### SUBMERGED GASOLINE MOTOR

Harry W. Sturges, of Wilton, Conn., has recently patented a device whereby a gasoline motor, reversible propeller wheel and, in fact, all motive parts are placed outboard, something after the idea of the submerged electric motor used on row boats. A tiller, sliding forward, engages into and operates a vertical rod, the other end of which has a ratchet attachment, thus starting the motor. The same tiller pushed back engages another rod which reverses the propeller blades, while turning it one way or the other swings the entire motor, which then acts as a rudder.

The gasoline tank and carbureter are placed above the motor, the cylinder of which is partially submerged for cooling purposes. The inventor does not state what advantage may be secured in using this contrivance and leaves one to imagine that it may be fitted to any boat.

Inasmuch as the outfit must have considerable weight itself, to say nothing of the weight of the operator, who must be close to the motor, a boat to carry it and hold good water line would have to be especially constructed therefor. A limited fuel supply is evident, and in a heavy back sea there would be some prospect of ignition and mixture troubles through danger of the motor and its parts being awash at times, to say nothing of the possibility of water working into the crank chamber and into the cylinder.

#### STEAM AGAINST GASOLINE

Once in a great while a steam enthusiast seeks speed, but refuses to trust himself to gasoline. While there are numerous instances of motor boats developing from 12 to 20 miles an hour, the boats being only from 25 to 35 feet long and the power not to exceed 24, there is not a case on record wherein small steam outfits have made speed within hailing distance of the figures just given. And when anything approaching the present speed marks of the gasoline boats is reached by the steam craft it is at a sacrifice of all comfort and room for a boiler and engine developing enermous power. As a sample, some fuss was recently made over the speed of a 60-foot boat in New York harbor, which was fitted with a triple expansion engine, developing 125-horsepower, and which, under forced draft, drove the boat through the water at 22 statute miles an hour, the equal only of a 30 or 35-foot motor bear

with but 24 horsepower. The engine, boiler, coal bunkers, etc., left barely space for the engineer and wheelsman, while in the motor boats referred to there is ample room for a score or more of people should the boat be used for a cruise.

#### A STEAM TRUCK MOTOR BOAT

The Societe d'Armements d'Antibes, of France, is making a specialty of manufacturing motor boats for fishing and trucking purposes. One of the latter kind has recently been purchased by the French colonial government. It is 32 feet long, is fitted with a 20-horsepower Beaudouin motor, and easily develops an average speed of 8 to 9 knots. The Beaudouin company announces that it will build a racing craft of a new type, which will be fitted with a 160-horsepower motor.

#### POWER BOAT NOTES

There are hundreds of little boat shops in Sweden and Norway, and the gas engine is being used extensively there.

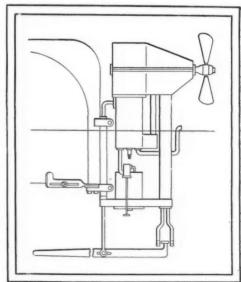
Boat builders concede the fact that the advent of the automobile has done much toward convincing their customers of the practicability of the gasoline motor.

Thirty-foot cruising launches, with low trunk cabins, are much used in southern waters during the winter months. A boat of this character not only is a safe sea craft, but affords an ideal affair for hunting.

An automobile boat is being built by the E. R. Thomas Motor Car Co., of Buffalo, N. Y., which will be adapted for both speed and pleasure purposes. The boat will be 30 feet in length, with 5-foot beam, and will be equipped with a 24-horsepower Thomas motor.

So far, at least, congress has passed no law placing restrictions upon small power boats, and is not likely to do so. The question has been brought up almost annually for many years but has been defeated each time. It is, however, being agitated by the steam people.

The rivers of Mexico are dotted with motor boats, generally the property of American plantation owners, who use them for supply boats. The popularity of this boat is partially occasioned by the Mexican law, which provides that where steam is used as a motive power in a boat a pative pilot is required.



MOTOR ALE

Standard Gasoline Motor

## MOTOR PATENTS REVIEWED

#### MAGNETIC CLUTCH

Letters patent No. 747,706, dated December 22. Edward M. Hewlett, of Schenectady, N. Y., assignor to the General Electric Co., of New York-The purpose of this clutch is not specified, but its construction is such that it could be adapted to an automobile in case of a magnetic driving clutch were desired. Instead of the cone clutch construction being used with the magnet in the female member, as magnetic clutches for automobile work have been constructed, this clutch comprises two movable members for the driving and driven elements and so disposed that they have a flat face engagement. Their outer edges are beveled and separated so that an annular stationary member may be interposed with clearance space all around, no matter whether the clutch be in engagement or not. This stationary member carries an exciting coil to establish a magnetic flux through a field encompassing the clutch members proper that they may be brought together for frictional engagement. All three main parts are of course made of magnetic material:

#### SPARKING COIL

Letters patent No. 747,755, dated December 22. Charles P. L. Nixon, of Syracuse, N. Y., assignor of one-half to the H. H. Franklin Mfg. Co., of Syracuse, N. Y.—The chief peculiarity of this coil is an electric conductor connecting the terminals in the secondary circuit, so that a shunt circuit which offers greater resistance than the other circuit is formed.

#### LUBRICATING SYSTEM

Letters patent No. 747,767, dated December 22. Louis Renault, of Billancourt, France—This is an adaptation of the splash system of lubrication in which especial provision is made for conducting oil to the crank shaft bearings. Within the casing and running longitudinally along side of it is a gutter or trough opening toward the casing wall. It is presumed that oil thrown centrifugally outward and upward against the casing wall by the cranks will be caught by this gutter. From it lead regular oil feeds to the crank shaft bearings. The oil dripping from the bearings, of course, collects in the bottom of the tank to form the regular splash supply.

#### CARBURETER

Letters patent No. 747,828, dated December 22. Benjamin Wright, of St. Louis, Mo.—This carbureter comprises a mixing chamber into which the gasoline is admitted through a valve at the top. It passes through a flaring perforated tube and strikes against a cone extending upward from the bottom of the chamber. The air inlet is on the side of the chamber and the outlet diametrically opposite it. Although not specified in the claims the drawings show poppet valves to control the opening of the fuel and air openings.

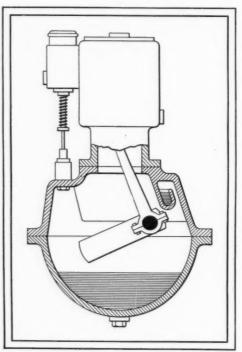
#### MOTOR SLEIGH

Letters patent No. 747,815, dated December 22. Eugene S. Weaver, of Jersey City, N. J.—This is a warming-up of the old gag of a car on runners with spiked wheels for traction purposes. The wheels are chain

driven from a counter shaft, which is driven in the same manner from the motor shaft, the motor being on the front end of the sleigh. The amount of traction is regulated in a very simple manner. The wheels are supported on the free end of a big bell crank lever. Manipulation of this lever raises or lowers the wheels. The steering wheel controls the speed of rotation of the traction wheels, to thereby turn the vehicle.

#### CANOPY TOP

Letter patent No. 747,888, dated December 22. Joseph L. Lawrence, of Brookline, Mass.—The invention relates to a front win-



MOTOR AGE

Patent No. 747,767

dow for canopy top cars, the window being arranged to be lifted to lie along the under side of the top when not in use. Running centrally along the top is a guide bar, upon which is a traveler that is attached to the center of the window top and is adapted to rock on the guide bar. Pivotally attached to

the lower corner of the window are swinging arms hinged at the upper ends to the side supports of the canopy top. The action of the window when being raised is for its lower end to swing upward while the upper end is drawn backard under the canopy top. There are catches to hold the upper corners of the window when it is in its raised position and rubber pads to prevent rattling.

#### PROPELLER SHAFT

Letters patent No. 747,909, dated December 22. Henry Ford, of Detroit, Mich.-The usual construction in the case of propeller shaft and bevel gear transmission to a live rear axle is to provide the shaft with a universal joint at each end. This invention comprises a system in which only one universal joint is used, the shaft being rigidly mounted in the rear axle gear case. The rear axle runs in a tubular casing, waich is enlarged near its center to accommodate the differential and the power transmitting bevel gear and pinion. It is also extended forward in tubular form to the transmission gear, to which it is loosely yoked. In this forward extension the propeller shaft is mounted and within the yoke at the forward end 16 connected to the driving shaft by an ordinary universal joint. Stays or distance rods extend from the outer ends of the axle casing to the forward end of the shaft propeller shaft casing.

#### RECENT INCORPORATIONS

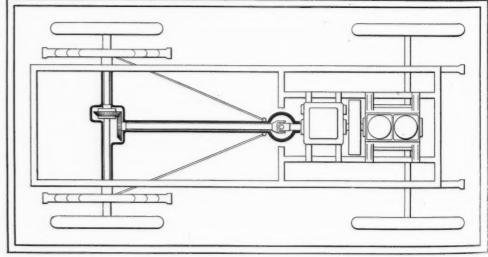
Marion Motor Cycle Co., of Indianapolis, Ind.; capital stock, \$500,000; to manufacture gasoline automobiles. Directors, Charles A. Bookwalter, Frederick A. Joss, Robert H. Hassler, J. Arthur Hittle and J. G. Belser.

The Imperial Automobile Co., of Detroit, Mich.; capital stock, \$250,000. Directors, J. B. Book, A. B. McCord, G. J. Worthy and R. O. Adams.

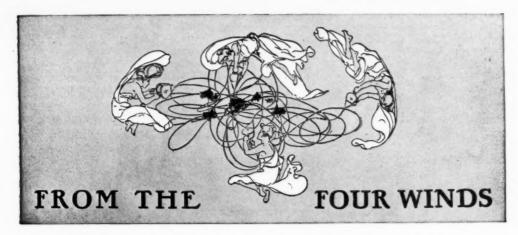
Detroit Automobile Top Co., Detroit, Mich.; to manufacture tops and cushions for automobiles; capital, \$5,000. Stockholders, J. Andre, Charles Ritter, J. Kubler and J. F. Dederich.

Crescent Automobile Co., Jersey City, N. J.; capital, \$50,000. Incorporators, Theodore F. Merseles, Louis J. Blakeslee and Edith E. Downs

Joliet Automobile & Garage Co., Joliet, Ill.; capital, \$25,000; to manufacture and repair automobiles. Incorporators, H. A. Fisher, L. D. Fisher and E. S. Munroe.



MOTOR AG.



Chains should be liberally supplied with oil and should also be run somewhat slack in wet weather.

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The American Steel & Wire Co. has issued a booklet containing a price list of products made at its factories.

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Burk Bros., of Chattanooga, Tenn., are building a two-story garage, covering a ground space of 42 by 85 feet, which they expect to occupy early in the spring.

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Cormier, a French driver, covered 4,200 miles in 53 days, through Spain, North Africa, Italy, Germany, Switzerland and France in a 12 horsepower de Dion-Bouton car.

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Nine large furniture cars, containing fifty complete automobiles, was the large shipment recently made by the Ford Motor Co. to its Philadelphia agency, the Keystone Motor Car Co.

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Charles E. Cotta, of Rockford, Ill., has received a conditional order for a number of coal wagons. Each wagon is to have a 50-horse-power gasoline engine and will have a carrying capacity of 7,000 pounds.

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The Whalebone Rubber Co., of 103 Chambers street, New York, in its catalogue for 1904 guarantees its tires puncture-proof under reasonable conditions, provided they are not subjected to excessive abuse or neglect.

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James R. McGill, of Chicago, has made a proposition to the citizens of Allegan, Mich., to locate an automobile factory in that town provided a bonus of \$20,000 is raised. A committee was appointed to investigate the enterprise.

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In England the tendency toward larger motors in motor cycles is noticeable and 1904 promises to be a large engine year. The 3-horsepower motor has become quite ordinary and the demand for motors of less power will be limited.

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An effort is being made to form an automobile clug on Staten Island. Meetings are being held at St. George. At the last meeting, Charles A. Schultz was elected temporary chairman and J. J. Worrell of St. George, temporary secretary.

烂 烂

A reorganization of the Werner Bros. Co., manufacturer of the Werner motor cycle, has taken place in France. The new company has a capital of \$600,000, said to be the largest amount involved exclusively in the manufacture of motor bicycles.

There will be five Napier cars in the Gordon Bennett eliminating trials. Three of the drivers will be S. F. Edge, John Hargreaves and Lieutenant-Colonel Mark Mayhew. M. Jenatzy and Baron de Caters will drive Mercedes cars in the Gordon Bennett race.

堤 堤

The Federation of Automobile Clubs of France, under the protection of the Automobile Club of France, is the title of the latest French organization, which was formed December 15. Prince Pierre d'Arenberg, the originator, was elected its president.

災 災

Leicher Bros. are preparing to start an automobile factory at Luverne, Iowa. Their plan is to buy the parts and assemble them. They believe they can make a more suitable machine for the western country at a lower price than eastern manufacturers can furnish them.

烂 烂

The automobile club of Rockford, Ill., was organized recently and the following officers elected: President, George L. Woodruff; vice-president, A. W. Church; secretary, H. W. Dickerman; treasurer, L. E. Scott. The organization will be called the Rockford Automobile Club.

烂 烂

The Jamesville Mfg. Co., of Jamesville, N. Y., successor to I. A. Weston Co., is now prepared to quote prices on artillery and steel wire automobile wheels, automobile steering devices, steel rim for both steel wire and wood spoked wheels, steel wire bicycle wheels and figure axle sets.

災 災

One of the first motor cycle road races in Spain took place near the end of last month over a course of about 60 miles, from Manresa to Barcelona. There were only four starters out of the seven motorists who had entered. F. S. Abadal on a Clement was the winner, covering the distance in 2:57:56.

災 災

The Motor Cycle Club of Austria will arrange an excursion to Homburg, Germany, in time to reach there for the Gordon Bennett race. The club will also next season promote a 100-kilometer track race, a road race over a course of 350 kilometers—about 218 miles—hill climbing races, and several efficiency tests.

烂 烂

Users of motor car lamps will be pleased with the attractive appearance of the new catalogue of the Atwood Mfg. Co., of Amesbury, Mass. The excellence of the printer's work impresses the reader favorably, while the illustrations and text fully explain the advantages of the oil, electric and gas lamps made by the company.

Walter F. Flynn, of Youngstown, O., has purchased a piece of property 58 by 159 feet on Court House hill for \$20,000. It is said a company will be organized and an automobile factory built on the ground. For the present Mr. Flynn will conduct a garage for the care of electric vehicles, and will also have a general electric supply establishment.

烂 烂

Emmet P. Gray, of Cincinnati, O., has patented an automobile differential gear, sprocket and brake drum, which he says contains eighteen fewer parts than any heretofore manufactured. Gray has a patent granted in 1899, which he believes covers the essential points of the rear axle equipment of nearly all American automobiles. He has instructed his attorney to bring suit to test the validity of the patent.

光光

The Frisbie Motor Carriage Co. has arranged to open a large salesroom and garage at 753 and 755 East Long street, Columbus, O. The head of the company is William M. Frisbie, president of the Columbus Motor Vehicle Co., maker of the Santos-Dumont and naturally this will be the leading car handled. Mr. Frisbie will attend the New York show and select the smaller line, as well as a stock of sundries for a general jobbing business.

烂 烂

A. Maffray, of Paris, and a party of friends have ended a tour through the south of France and the northern part of Spain, covering about 1,900 miles in less than 2 weeks. During several days the travelers rode over roads covered with 4 feet of snow, had to cross high mountains, and climb hills having 12 per cent grades The car used was a 12-horsepower de Dietrich and M. Maffray states that the party did not have to stop a single time on account of any accidents.

姓 姓

The Winton company, in a circular to agents, relates that in talking tires with the rubber companies the latter were asked if they could make anything better than that offered. The reply was that better goods could be produced, but that the cost would be too much. The best was called for, so that the Winton people now tell their customers that as their tires are absolutely guaranteed by the makers, the purchasers will be put to no expense in case of troubles from this source.

災 災

The Physicians' Automobile Club of New Jersey, composed exclusively of physicians, has been organized in Newark. Dr. Edward L. Burns is president, Dr. William H. Bull vice-president, Dr. Clement Morris secretary and Dr. M. Z. Westervelt treasurer. The club has a charter membership of twenty and a number of applications have been received. The objects of the organization are purely social, and at the meetings automobile matters will be discussed. The club will purchase automobile supplies in bulk and dispose of them to its members at cost.

烂 烂

The historic old bus, which for ages has done service carrying passengers and the mails between the various towns in Kehl section of Baden, Germany, where the railroads do not touch, is giving way to large automobiles, which travel faster and are more comfortable. An automobile line is about to be established between Kehl and Rheinbishopsheim, a distance of 10 miles. An automobile has been purchased



MOTOR AGE

The Remains of a Toledo Touring Car After the Burning of the Station of S. E. Avery, of Columbus, O.

which will accommodate twenty people, in addition to space for baggage and mails. The machine is the property of the towns of Rheinbishopsheim and Bodersweiler, and cost \$3,332. It will make several trips each day, the fare being 10 cents each way, or 17 cents for the round trip. The towns owning the machine pay all running expenses and divide the profits, an additional sum being paid by the various towns along the line for the privilege of having the mails carried.

烂 烂

Since Hayden Eames, of Cleveland, O., issued his No. 1 catalogue and eleverly divided it into groups, he has issued a No. 2 catalogue, similarly arranged. The two catalogues are now embodied in one, tied and encased in burlap cover, which suggests not only taste in arrangement but substantiability as well. Catalogue No. 2 embraces the equipment section, steering gear section, brake section, and motor suspension and transmission gear section, these including such parts as are used in electric rigs of all sizes and for all purposes.

#### 烂 堤

Experiments are being conducted by the Berlin postal authorities with two automobiles, one an electric car and the otner driven by alcohol. While the latter is of about 5 horsepower it averages 11½ miles per hour. The regular power of the electric car is 3 horsepower, but it can be increased to 6 in urgent cases. The manufacturers furnish the drivers and the experiments will be made during at least 6 months, especially during the winter season. The alcohol car is used for the collecting of mails, while the electric car delivers packages.

115 115

The Knox Automobile Co., of Springfield, Mass., says it is cheaper and quicker to ship automobiles under their own power to points within a reasonable distance, even during winter weather. As an instance, the company relates that recently it shipped a car to New York by rail, the start being made Monday morning, and the car arriving at its destination Thursday. Another car started under its own

power Tuesday forenoon and arrived at Philadelphia Wednesday afternoon, having made several calls on the way during which considerable business was transacted.

1 11

The governors of the Automobile Club of New Jersey at their meeting last week elected G. Franklin Bailey vice-president to fill the vacancy caused by the resignation of Arthur Baldwin. Dr. W. Quivey was elected one of the governors to succeed Mr. Bailey. The following chairmen of the committees were appointed by the governors: Law, James B. Dill; good roads, John A. Hill; contests and tours, C. H. Gillette; house, Dr. W. Quivey. The house committee was requested to investigate the matter of securing a clubhouse with

facilities for a meeting room and garage and make a report at the next meeting.

姓 姓

The automobile industry of France has had a rapid development, and the foreign trade in the different machines manufactured in France has been favorable up to the present time. The total export trade in 1902 was valued at \$5,832,-341, while the imports were valued at \$206,-000. Great Britain proved the best automobile customer France had, the exports to the former country in 1902 being valued at \$3,703,-656. Italy was the next largest customer, with \$466,512, while Belgium was third on the list with \$394,457. Germany purchased French automobiles in 1902 to the value of \$358,868, while those sent to the United States in that year were valued at \$82,809. Other large purchasers of French machines were as follows: Algeria, \$219,090; Spain, \$76,833; Holland, \$67,745; Switzerland, \$53,704; Russia, \$39,353; India, \$19,312; Tunis, \$73,325; other French colonies, \$29,340; other foreign countries, \$247,-

It is stated officially that the demand for motor cars is on the increase in Cuba. The first automobile seen in Havana was about three years ago and since then the fashion has spread to such an extent that an automobile club has been formed. Cars are also being run into the interior of the country. Gasoline is the favorite system used, but some steamers are also in use. They are imported for the most part from France and the United States and sell at the following prices: For onecylinder, 8-horsepower, gasoline cars, about \$1,-400; for two-cylinder, 12-horsepower cars, \$1,-600 to \$1,800. These prices are out of the reach of a great many people who would be willing to buy smaller cars if introduced at a lower price. The roads in Cuba being as a rule very bad, cars should be constructed with parts as strong as possible. They should also be attractive in appearance and 10-horsepower should be the minimum power to allow for the hilly nature of the country. The Cuban import duty on automobiles is 25 per cent ad valorem.



MOTOR AGE

The Hoozier Poet in a Hoozier Car

#### AMERICAN MOTOR LEAGUE OFFICIAL BULLETIN

-: OFFICERS : -

S. W. MERRIHEW, 3d Vice-Pres., 154 Nassau St., New York ROBERT L. STILLSON, Sec'y, 150 Nassau St., New York FREDERICK B. HILL, Treas., 32 Binford St., Boston

#### CHAIRMAN OF NATIONAL COMMITTEES:

LEGISLATION......Frank A. Egan, New York, N. Y. MEMBERSHIP .....Frank A. Egan, New York, N. Y. LOCAL ORGANIZATION ...... Charles F. Potter, Denver, Colo.

SIGN BOARDS......John B. Price, Hazleton, Pa. RACING ...... A. G. Batchelder, New York, N. Y. 

#### NATIONAL HEADQUARTERS, 150 NASSAU STREET, NEW YORK

#### MADISON SQUARE GARDEN

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In January all roads will lead to Madison Square. The big garden will contain the A. M. L. convention and the automobile show, both in the same week. The dates of the convention are January 19 to 22. This is the time when the league will begin to make history, and every member should do his best to keep the pages clean and bright. Make up a party of your friends and neighbors and come to the convention, and to the show. Come prepared to take part in the proceedings; wear your best smile and make yourself acquainted with every league member you meet. Friendships will now be formed that will last a lifetime.

At this convention, those present will discuss various subjects of mutual concern and interesting speakers will address the meeting. On the first day the good roads subject will be paramount. On the following days the subject of state and local organizations will receive attention. State divisions for Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland and other eastern states will be outlined, officers selected and division work set in motion. At the same time, league members from other states will hold preliminary conference and get ready for organization work at the adjourned meeting to be held in Chicago. Printed matter relating to the forming of state and local organizations will be distributed.

#### REDUCED FARE

Everybody is writing to the secretary on the subject of railroad fares. Reduced fares have been conceded to A. M. L. members, so that all who attend the convention will save one-third the ordinary round trip fare. This arrangement now covers all territory controlled by the New England, Trunk Line, Central and Southern Passenger Associations; in other words, all that portion of the United States east of a line drawn from Chicago southwesterly to St. Louis, and thence following the Mississippi river to the gulf. Arrangements covering other territory, as far west as Denver will probably be concluded during the present week.

#### PRINTED DIRECTIONS

Printed slips instructing each person how to secure the benefit of these reduced rates have been prepared and will be sent in quantities to all members and others who will take part in making the convention popular and successful. These instructions, briefly stated, are as follows:

1—Purchase a first-class ticket to New York at the regular tariff rate and at the same time procure from the ticket agent a certificate properly signed and stamped. If you cannot procure

a through ticket from your starting point, get a ticket to the most convenient point at which a through ticket can be had and there repurchase through to New York, procuring a proper certifi-cate from each agent from whom a ticket is bought and present all the certificates to the

special agent at the meeting.

No reduced rate will be given to any person not holding the proper certificate, and only members of the American Motor League will receive the benefit of this reduced rate.

-Tickets for New York under this arrangement must be purchased not earlier than Friday, January 15, nor later than Thursday, January 21,

3-Tickets for the return journey will be sold by the ticket agents at New York at one-third the first-class limited fare to only those persons who hold proper certificates countersigned by the proper officer of the American Motor League. certifying that the holder has been in attendance at the meeting, and vised by the special agent of the Railway Association. The special agent will attend at the meeting only on Thursday and Friday, January 21 and 22. All certificates must be presented to the agents on one of the dates here mentioned in order to be available in securing the special rate.

4—Reduced fares are granted only in case the "going" or one way fare is at least 75 cents.

5-To prevent delay, all certificates should be presented to the ticket agents for return tickets at least 40 minutes before the departure of trains on which return trips are to be made. this is not done a rush of work at the ticket offices may prevent the issue of reduced rate tickets till a later hour.

6-Certificates and tickets issued under this arrangement are not transferable.

All members in arrears for dues should send renewed fee-\$2-at once to the secretary and receive membership card for the current year.

#### THE AMERICAN MOTOR LEAGUE

is an organization to promote the interests of all users of motor vehicles; to ascertain, protect and defend their rights; to oppose and prevent the enactment of unreasonable and oppressive laws; to encourage the use of motor vehicles by agitation, and instruction, the provide lite men. tation and instruction; to provide its mem bers with printed routes, maps and guide books by which touring may be facili-tated and encouraged; to promote the with tated and encouraged; to promote the work of improving the public roads and the erection of proper guide boards, and other signs necessary to guide and warn the users of motor vehicles; to select and appoint official hotels, repair shops and supply stations where its members may obtain reliable service at reasonable rates.

#### WHO MAY BECOME A MEMBER

"Any man or woman, 18 years of age or over, of good moral character and respectable standing, friendly to the motor vehicle and its interests, shall be eligible to membership."

(Constitution, Article 2, Section 1.) The League is extending its membership The League is extending its membership in all parts of the country. We invite all friends of the movement to join and aid in building up a powerful organization.

NO INITIATION FEE. ANNUAL DUES \$2 IN ADVANCE, OR \$3, INCLUDING 1 YEAR'S SUBSCRIPTION TO MOTOR AGE.

All who are not members, but who wish to join the league and attend the annual convention at New York, automobile show week, should send name and address with one year's dues,  $\$2_r$  and receive membership ticket. All such persons will be given the benefit of reduced railway fares under the arrangement above described.

#### CONVENTION AT CHICAGO

The league will hold an adjourned convention at the Coliseum Chicago, on Tuesday, Wednesday and Thursday, February 9 to 11 inclusive. On these dates the automobilists of Illinois, Indiana, Ohio, Michigan, Minnesota, Wisconsin, Iowa, Missouri, Colorado and other states will take steps to form state divisions and other meetings will be held, of which a program will be announced later.

Reduced railway fares have been granted by the Central Passenger Association to A. M. L. members attending the Chicago convention, and it is expected that other associations will grant a similar concession within the next 10 days.

#### BANQUETS

There will be a "get together" banquet of A. M. L. members at Chicago and probably one at New York. Full particulars will be announced as soon as arrangements are per-

#### FINALLY

Let every member who holds the league in due affection embrace this greatest of all chances to serve it bravely and loyally. Let us build it to a point where its burdens will be lighter and its usefulness greater, so that every automobilist in the world was hold if in deep respect and every automobilist in America feel the benefit of its work and influence. Come to tuese conventions and bring your friends with you. Your presence and theirs will gladden and encourage every friend of the organization and inspire its officers with new confidence and a higher determination to accomplish the tasks which these weeks are bringing forth.

#### LETTERS FROM MEMBERS

Binghamton, N. Y .-- I am in receipt of the appointment as consul of the A. M. L. and I thank you for the evidence of confidence. I shall be pleased to further the interests of the league in every way possible. I have admired the push and energy displayed by the active officers of it. Shall try to incite interest here and form a club, as we have 100 motorists and none of them have any affiliation with any organization as yet, and the time is ripe to gather them into the fold. Shall be pleased to send you any information, lists of motorists or in any way assist you in getting

them in line.—A. L. Kent.
South Bend, Ind.—I beg to acknowledge your favor of November 10 advising that I had been appointed a consul of the league, and receipt of the certificate. While I have little time for outside matters, I am very much interested in the future good work of the league and assure you of my appreciation of the evidence of the confidence and good will of your officers. I shall be very glad, in so far as I am able, to co-operate with you .- M. B. PINE.

## National Acknowledgment

FOR THREE YEARS THE ENGINEERS

OF THE

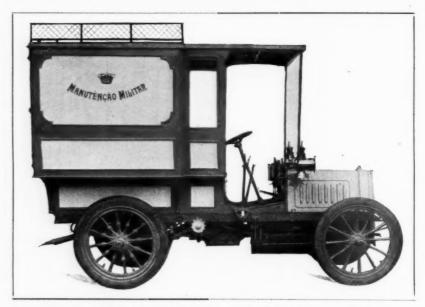
## Italian and Portuguese Governments

EXPERIMENTED WITH THE CLASSIC FOREIGN AUTO-MOBILES FOR POSTAL, CUSTOM AND WAR OFFICES

AND ADOPTED THE

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## HOLLANDER&TANGEMAN

Sole Agents for U.S. and Canada.

Spaces 4 and 5, Exhibition Hall, Madison Square Garden

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Profit by Experience





We propose to exhibit at the New York Automobile Show Jan. 16-23, '04, spaces 117-118, a most complete line of National Electrics, comprising Runabouts, Road Wagons, Stanhopes, Traps, and a new model specially designed to meet the requirements of

the new *Edison Battery*. (This battery can be supplied with any of our runabouts.) In the Gasoline Touring Car line we will show two new up-to-date four cylinder bevel gear, 20 and 40 H. P. cars that must be seen to be appreciated. These cars will

## "GO THE ROUTE."

Our advance circulars are ready and will be mailed upon request.

## National Motor Vehicle Co.

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# TWO NEW AUTOMOBILE TIRES

The Instantaneously Detachable

**DUNLOP** 



The

HARTFORD

CLINCHER

Introducing an entirely new departure in rim construction. : Its detachable side flanges or beads are removed by the simple loosening of a screw, leaving a flat faced rim, from which the tire can be removed "like slipping a belt off a pulley"—a loose belt at that,

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made under the G & J patents. This tire combines all the excellent qualities of that construction with many improved features of its own, hitherto characteristic only of the foreign makes

NEW YORK SHOW, Spaces 1 and 2 CHICAGO SHOW, Spaces 151 and 152

#### THE HARTFORD RUBBER WORKS CO.

HARTFORD,

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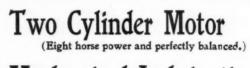
BOSTON NEW YORK PHILADELPHIA BUFFALO CLEVELAND DETROIT CHICAGO MINNEAPOLIS DENVER SAN FRANCISCO



MOTOR AGE

## A REVELATION

## IN VALUES



Mechanical Lubrication
(The kind usually found on the \$5,000 cars.)

Slide Gear Transmission (Three speeds ahead; two reverse.)

Multiple Disc Clutch
(Starts without jerk, holds everything in sight.

## ALL FOR \$750.00

MATCH IT IF YOU CAN

A LIMITED NUMBER OF 1904 AGENCIES OPEN. Correspond with us or arrange to see the car at our own branches in New York or Chicago during the shows. • OUR CATALOG IS WORTH READING.

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Does this list impress you? Will your car be equipped with Continentals? See our exhibit at spaces 128 and 129 Madison Square Garden, New York City, space 200 Chicago Auto Show, and at Detroit, Cleveland, Boston, Mass., Philadelphia and Washington Auto Shows.

## The Continental Caoutchouc Company

Factory: Hanover, Germany

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## THE ROYAL TOURIST

A CAR UP TO THE MINUTE IN EVERY RESPECT

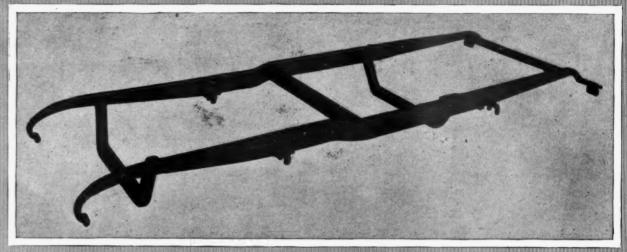


Three Speeds
90-inch Wheel Base
34-inch Wheels
Aluminum Body
Pressed Steel Frame
Cellular Ventilator
\$2,300
40 Miles
1,800 pounds
February Deliveries
Booklet Now

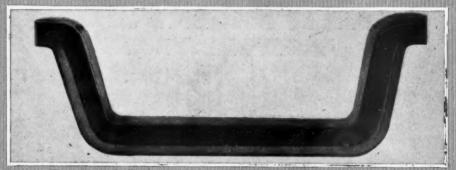
THE ROYAL MOTOR CAR CO. CLEVELAND, OHIO

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These Top Frames are made of Cold Rolled Steel and are supplied, with or without Forgings, assembled or as Frame Members



Typical Pressed Steel Frame Member

We make a specialty of manufacturing to customers' specifications. Let us figure with you (in quantity) for:

FRONT AXLES—TUBULAR AND FORGED

REAR AXLES—CHAIN AND BEVEL GEAR DRIVE
(Ball, Roller, or Plain Bearings)

CHANGE GEARS

TRANSMISSION GEARS

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ENGINE CRANKS MUFFLERS

New York Show Spaces 152, 153, 154, 155

Chicago Show Spaces 132, 133, 134, 135

Send for Catalog of Standard Parts

FEDERAL MANUFACTURING COMPANY Cleveland, Ohio

SELLING AGENT-HAYDEN EAMES-Cleveland.

## NOTICE

USERS, AGENTS, IMPORTERS, DEALERS AND MANUFACTURERS OF

## Gasoline Automobiles

United States Letters Patent No.549,160, granted to George B. Selden, November 5, 1895, controls broadly all gasoline automobiles which are accepted as commercially practical. Licenses under this patent have been secured from the owners by the following named:—

#### MANUFACTURERS

Electric Vehicle Co.

The Winton Motor Carriage Co.

Packard Motor Car Co.

Olds Motor Works

Knox Automobile Co.

The Haynes-Apperson Co.

The Autocar Co.

The George N. Pierce Co.

Apperson Bros. Automobile Co.

Searchmont Automobile Co.

Locomobile Co. of America

The Peerless Motor Car Co.

U. S. Long Distance Automobile Co.

Waltham Manufacturing Co.

Pope Motor Car Co.

The J. Stevens Arms & Tool Co.

H. H. Franklin Mfg. Co.

Charron, Girardot & Voigt Co. of

America (Smith & Mabley)

The Commercial Motor Co.

Berg Automobile Co.

Cadillac Automobile Co.

Northern Mfg. Co.

Pope-Robinson Co.

The Kirk Mfg. Co.

Elmore Mfg. Co.

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The F. B. Stearns Co.

#### IMPORTERS

having licenses for the importation of all makes of foreign cars:

Charron, Girardot & Voigt Co. of America (Smith & Mabley)

Standard Automobile Co.

E. B. Gallaher

Central Automobile Co.

These manufacturers are pioneers in this industry and have commercialized the gasoline vehicle by many years of development and at great cost. They are the owners of upwards of four hundred United States Patents, covering many of the most important improvements and details of manufacture. Both the basic Selden patent and all other patents owned as aforesaid will be enforced against all infringers.

No other manufacturers or importers than the above are authorized to make or sell gasoline automobiles, and any person making, selling or using such machines made or sold by any unlicensed manufacturer will be liable to prosecution for infringement.

A suit was commenced on Oct. 22d against a dealer, and against a manufacturer infringing United States Letters Patent No. 540,160.

A suit was commenced Nov. 5th, against a purchaser and user of an automobile infringing the same patent.

Association of Licensed Automobile Mfrs. No. 7 EAST 42d STREET, NEW YORK

DEPENDENT DEPENDENT DE LA PRINCIPIE DE LA PRIN

Don't imagine that all tires are alike. Some never are good. Many look well at first but soon give out because not properly made. Others look well at first and continue to look and wear well because they are honestly made.

Every detail of construction in

## G&JIRES

is given the care and attention that positively insures results of the highest quality. That is why we invariably please our patrons and maintain our standards.

You can avoid mistakes by buying a make with a reputation—the product of a concern with a standard to maintain.

Don't take chances with the safety of your vehicle or yourself when you can secure protection by using the G. & J. Tires.

NEW YORK SHOW: Space 147 CHICAGO SHOW: Spaces 153 and 154

## G & J TIRE CO.

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## CLASSIFICATION ... WHY?

THE LIGHTEST
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MOST DURABLE
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ABSOLUTELY SAFE
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BEST TO RIDE
MOST ECONOMICAL
TO KEEP

#### THE BAKER ELECTRIC

Attractive in Rich Finish and Design. Simply Manipulated. Always Satisfactory. A Carriage Any Lady Can Drive.

THE BAKER MOTOR VEHICLE CO.,

Cleveland, Ohio

\$2,000

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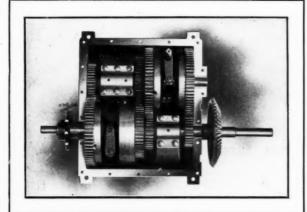
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## SANTOS DUMONT

The Flying Automobile

Built To Go
Easy Riding
Four Cylinders
Weight
1800 Pounds



Ample Power
20 Horsepower
Over 1 h. p. to
each 100 lbs.

Its elegance of appointment recommends it to people of quality. Agents should make inquiries before the Automobile Shows.

\$2,000

Columbus Motor Vehicle Co. columbus, ohio.

\$2.000

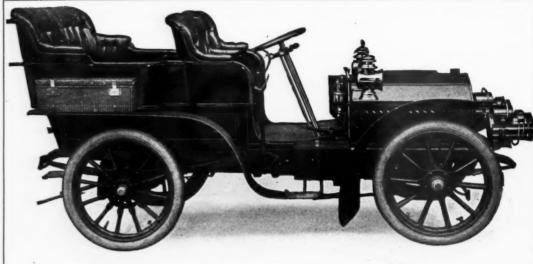
## DARRACQ CARS



Oldfield Defeated by DARRACQ CAR at Detroit and Philadelphia

See Our New 24 H. P. 1904 Model





24 H. P. Four Cylinder Touring Car



WINNER

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SILVER CUPS

Our New Touring Cars are the Acme of Perfection . . . .



#### AMERICAN DARRACQ AUTOMOBILE COMPANY

Controlled by F. A. La Roche Company, 652-664 Hudson St.,

CHICAGO: J. B. McKeague Co.,

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#### IMPERIAL" Gasoline Automobiles

DOUBLE OPPOSED AIR-COOLED MOTOR THE HOTTEST DAYS OF SUMMER THE COLDEST DAYS OF WINTER

**BEVEL GEAR DRIVE** SLIDING GEAR TRANSMISSION

#### WE MANUFACTURE 4 DIFFERENT MODELS

Model A. Open Runabout

Model B. Runabout Furnished with Falling Top or Doctor's Top

Model C. Delivery Wagon

Model D. Full Glass Doctor's Car

All of which we will have on exhibition at the Fourth Annual Automobile Show in New York and the Third Annual Automobile Show in Chicago.

#### HAS ALL THE LATEST IMPROVEMENTS

Our "IMPERIAL" Automobiles are driven by double opposed air-cooled engines (no water, no radiator coils, no pump), placed in front, away from all dirt and dust. All parts accessible by simply lifting the hood. Has bevel gear drive instead of sprocket chain. Sliding gear transmission! Two brakes. Automatic spark timer. Forced feed oiler of large capacity. Tilting steering wheel. Our spring suspension we claim is the most practical and best ever shown on any automobile. Body of handsome design roomy and comfortable, and with of handsome design, roomy and comfortable, and with ample room back of seat for carrying a number of parcels. Upholstered in the finest quality of leather.



IMPERIAL MODEL "A"

AGENTS WANTED IN UNOCCUPIED TERRITORY BOOKLET ON APPLICATION

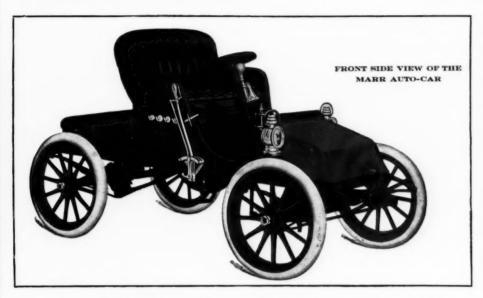
RODGERS & CO., COLUMBUS, OHIO, U. S. A.

#### THE MARR AUTO-CAR

#### AMERICA'S BEST

Wonderfully Simple Exceedingly Durable

#### Absolutely Reliable Perfectly Controllable



A vehicle suitable for use by drivers who have no engineering knowledge, experience or tastes for same.

Because an Automobile has been on the market for a few years—is no sign it is the best.

#### THE MARR AUTO-CAR

Is up-to-date with all known improvements and is conceded to be more than two years in advance of all others.

PRACTICALLY NOISELESS AND ODORLESS

#### STARTING, STOPPING, REVERSE AND ALL CHANGES OF SPEED ACCOMPLISHED BY ONE LEVER AT RIGHT OF SEAT

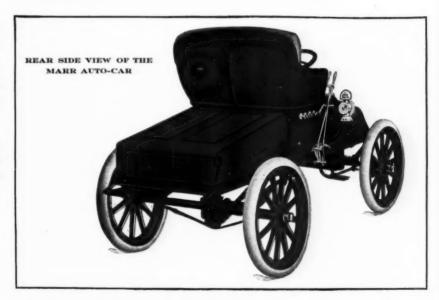
Any man, woman or child can drive and operate it easily without becoming confused.

Attracted the most favorable comments of any vehicle of its kind at the Chicago Show for its handsome appearance, novel features and fine workmanship.

A cheap Automobile proves a dear bargain in the end. It costs more in repairs and renewals in one year than a good machine will in five years.

#### THE MARR AUTO-CAR

IS BUILT TO ENDURE AND IT ENDURES



#### WILL CLIMB ANY HILL-ON ANY ROAD-IN ANY WEATHER

Its simplicity enables any person to at once become acquainted with its mechanism without resorting to professional aid.

Ideal

REPRESENTABLE CARECULAR CA

Winter and Summer Machine

Price Complete, with Fenders, Lamps, Rubber Foot Mat and Tools

\$800

FOR OTHER INFORMATION AND PARTICULARS SEE THE FOLLOWING PAGE

THE MARR AUTO-CAR CO.

DETROIT, MICHIGAN

#### THE MARR AUTO-CAR

HE MARR AUTO-CAR is a new factor in the automobile world, at once taking high rank as the embodiment of comfort, convenience, strength, speed and practical mechanism. It was designed by Mr. W. L. Marr, an experienced, practical mechanical expert, among the first auto builders of America, having designed and built the models of several of the most successful automobiles on the market to-day; and in the Marr Auto-Car is embraced the successful results of previous designing and construction, combining those very essential features proven

by practical experience to be the necessity of the satisfactory automobile.

Because of the fact that in the making of automobiles lies the greatest manufacturing industry in the United States, and that gasoline is the only successful motor power—because it possesses the greatest number of advantages and the least number of disadvantages—Mr. Marr has given over four years of his time in testing and perfecting the Marr Auto-Car, which, after the most severe trials, has proven the best among all competitors in the auto line. The favorite criticism of competition is that it will be impossible to manufacture a machine like the Marr Auto-Car, upon such fine design and with such splendid workmanship in every particular, to sell at a price that will meet the popular demand. However, our experience is that the prospective buyer is not looking for cheapness, but rather for the BEST, which is always cheapest in the end.

#### POTENT FACTS

The car is the "reachless" pattern with a channel steel running gear, mounted on four semi-elliptical springs. Has a single cylinder engine,  $4\frac{3}{4}$ -inch bore by 6-inch stroke, giving ample  $6\frac{1}{2}$  horse power, which will carry it over all kinds of roads at a speed of from 4 to 30 miles per hour at the will of the driver, and consistent with the condition of the roads.

SHOWING

STEERING
WHEEL
WHICH CAN
BE SET
FORWARD
OR BACK
IN ANY
HALF
DOZEN
POSITIONS
AS

DESIRED

Equipped with artillery wood wheels and 3 x 28-inch diamond tires, unless otherwise ordered.

Steering is done by an adjustable wheel, which moves back and forth to any position desired, and when moved forward is entirely out of the way, when getting in or out of the Vehicle. Steers with wheel in any position.

Has the least number of parts and is the most simple in construction of any automobile made.

Has low centre of gravity which, with extra long wheel-base, assures comfort in travel.

All the lubrication is in sight at all times—cylinder oil cup located on dash—bearings are oiled by compression in cups, easily accessible on outside right of body.

Has extra powerful emergency band brake. 11/4-inch rear axle.

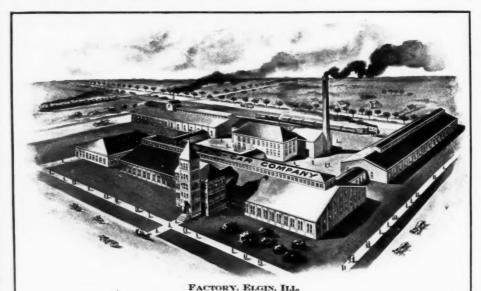
Gear pump. Water-cooling device. Tinkem

roller bearings.

Planetary transmission. Float-feed carbureter. Valves mechanically operated. Always ready for action, and not affected by the various conditions of the atmosphere. Low mount, making it exceptionally easy to get in and out.

All Marr Auto-Cars are of the same design and finished alike in automobile red with chocolate trimmings.

All Marr Auto-Cars are of the same design and finished alike in automobile red with chocolate trimmings. Upholstering is the best black leather. Springs in back and seat. Equipped with an extra set of batteries.



The Marr Auto-Car, complete, weighs about 1000 pounds, and with one charge of gasoline and lubrication will easily run 250 miles without any trouble or annoyance.

The Marr Auto-Car is being manufactured at Elgin, Ill., and all shipments will be f. o. b. that point

ments will be f. o. b. that point

Experience will demonstrate that
those who drive the Marr Auto-Car
will be strangers to the repair shops.

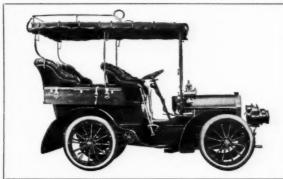
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TERMS ADDRESS

#### THE MARR AUTO-CAR COMPANY

DETROIT, MICHIGAN

# **Locomobile** Gasoline Touring Cars

Equal in materials and workmanship to the best Foreign Cars but — BETTER ADAPTED TO AMERICAN CONDITIONS on account of ample clearance, interchangeable parts, etc.



Special attention paid to the selection and testing of materials. Every motor is given a special test under load. Every complete chassis is tested on the road for several hundred miles before finishing.

### A New Four-Cylinder Touring Car with Cellular Radiator

Better place your order now for early spring delivery, many others are doing so.

The Locomobile Company of America, BRIDGEFORT, CONN.

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HE coming of the Ford marked a radical change in Automobile building. The double opposed motor gives such universal satisfaction that manufacturers of single cylinder machines are changing their engines to compete with our type of car. :: :: The success of the Ford is due to the originality of its construction. Its reliability is assured by the highest grade of materials. The most severe tests have proved the Ford to be "The King of the Road." ::

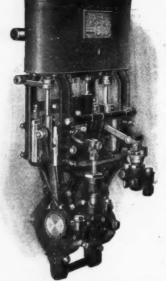
\$900 with Conneau. \$800 as a Runabout.

Lamps, Horn and Brass Trimmings, Extra.

Mr. Ford made the first Automobile in Detroit and third in the United States. The Ford Motor Car of today represents the most advanced type of Automobile construction.

We agree to assume all responsibility in any action the Trust may take regarding alleged infringement of the Selden Patent to prevent you from buying the Ford-"THE CAR OF SATISFACTION,"

ORD MOTOR CO., Detroit, Mich



#### THE "NEW MASON" Model C

# The "NEW MASON"

(Model "C")

includes all of the many excellencies of the original Mason Engine, with additional features, which give it a still greater lead ahead of all other steam auto engines.

Every part of the Mason Engine has been critically gone over, and wherever possible, improved, strengthened and perfected in every smallest detail.

We have made, operated and repaired more steam auto engines than any other concern, and have concentrated in the "Model C" all of the experience gained by this wide observation of all other engines. We do not claim that

Model C" is a perfect engine, but do positively Mason affirm, and are ready to back up our affirmation, that it is, from every standpoint,

### THE BEST AUTO ENGINE IN

Our "Model C" catalogue will tell you all about this engine, and prove interesting to every autoist. It will be a pleasure to mail you a copy. Send postal card for it to-day.

A full line of parts for all Mason Engines will be found at 147 Queen Victoria St., London, England.

THE MASON REGULATOR COMPANY, 158 Summer Street, BOSTON. MASS. Kindly mention this publication in writing.

# Locomobile Steam Car



#### SWIFT RUNABOUT

which you can operate with equal facility either in crowded streets or in the country...Get a Locomobile Steam Car.







If you want

#### A RUNABOUT

that will climb every hill it comes to without any doubt about it .... Get a Locomobile Steam Car.



### LONG WHEEL BASE RUNABOUT

125 Miles on Gasoline . . . A Very Desirable Car

Write for information about our Steam Models

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Our Chicago-New York Record Run and the New York-Pittsburg Endurance Run Clearly Demonstrated the Superiority of

# Ofumbia Gasoline Cars

We now wish to emphasize the fact that something happens every now and then to demonstrate the superiority of

# Columbia Electric Vehicles

For instance: October 27-28, 1903, a COLUMBIA Electric covered the distance of 249½ miles between New York City and Boston in 22 hours and 52 minutes, running time, beating the best previous record by hours.

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Catalogue of 20 different Columbia Electric and Gasoline Automobiles will be sent on request.

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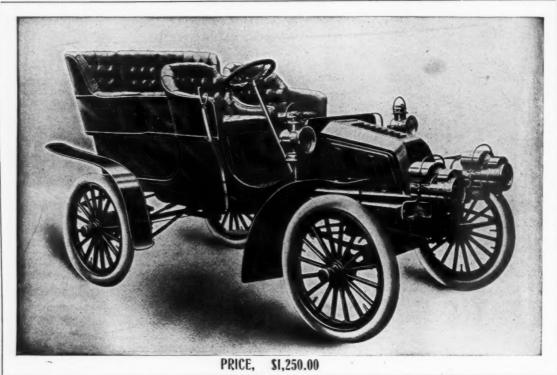
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the greatest flood in the history of New York State and finished

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Both the Fredonia Tonneau No. 2 and the o-horsepower Runabout are stayers in any kind of use.

Our run demonstrated this beyond peradventure of a doubt.

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That every Grocer, Butcher, Baker, Laundry and Dry Goods Store in your town needs one of our Buckboards with delivery box to deliver their hurry telephone orders. If you are awake you can get our agency and sell from ten to fifty of these machines in your town before your competitors know what you are about. The Buckboard will do as much work in a day



THE ORIENT BUCKBOARD. Delivery Box \$18 Extra.

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BY THE TEST OF ACTUAL SERVICE

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PROVE THEIR STERLING WORTH

Our 1904 Construction has not only speed and resiliency but DURABILITY POSITIVELY UNEQUALED

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It is so extremely important that no man personally interested in automobiling or a single automobile CAN AFFORD TO NEGLECT INVESTIGATING.

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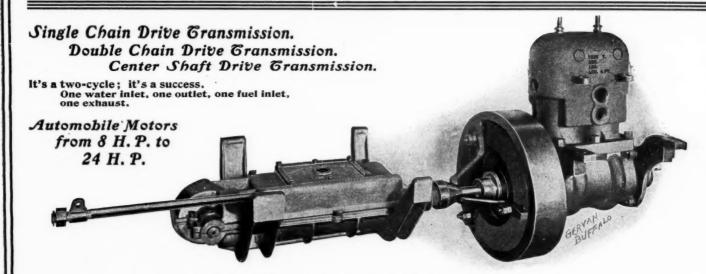
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Single Chain Drive Transmission and Clutch Coupled to Motor

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SQUARE GARDEN MADISON NEW YORK

SPECIAL NOTICE

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January 16 to 23, 1904

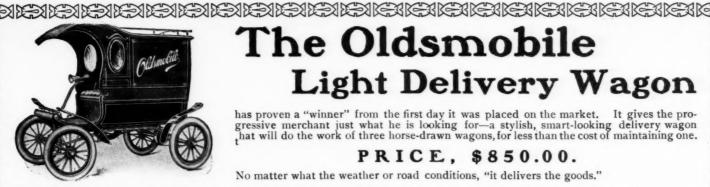
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ONTAINING names of the manufacturers of Automobiles, Motors, Engines, Bodies, Parts, Fittings, and Dealers in Sundries, Repairing, Charging and Storage Stations; also list of all Automobile Clubs and about 16,000 names of Automobile Owners and Operators throughout the United States; also a list of the Dealers and Repairers of Bicycles in the United States and Canada, by States and Territories, and a classified directory of Manufacturers and Jobbers of Bicycles, Material, Parts, Fittings, etc. :: :: Price, \$5.00, Prepaid.

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has proven a "winner" from the first day it was placed on the market. It gives the progressive merchant just what he is looking for—a stylish, smart-looking delivery wagon that will do the work of three horse-drawn wagons, for less than the cost of maintaining one.

PRICE, \$850.00.

No matter what the weather or road conditions, "it delivers the goods."

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## Criterion Hotel

Broadway & 41st St., NEW YORK

### Handy to Everywhere

Headquarters for the Western Trade during New York Automobile Show.

G. T. STOCKHAM, Prop.

THE LITTLE THINGS but

Proper Linen, proper Glassproper table things.

Temperature, be it of Burgundy or Champagne; chilled oyster or sizzling steak; especially the room you sit in-RIGHT.

And above all-SERVICE

You don't have to ask for things.

LITTLE THINGS are BIG at The CRITERION.

Table d'Hote Dinner—Luncheon.
MUSIC. New Control.

# CREST Catalogue. 50

### The Silent Wolverine

#### A LIVE PROPOSITION FOR LIVE AGENTS

A FEW OF ITS CHARACTERISTICS ARE

Bevel gear drive with sliding gear transmission, three speeds ahead and reverse.

Speed range from 6 to 35 miles an hour.

3-inch angle steel frame—cannot weaken.

Long wheel base.

Large high back tonneau.

Finest leather upholstering.

Total seating capacity five or six.

Space under tonneau floor to carry extra tire, rain covers, etc.

Construction is above reproach in every item.



It is a 15-horsepower double opposed cylinder motor car with a line of improvements over ordinary construction that render it distinctively unique. The car runs as smoothly as a watch—it is olded automatically—there is no bother with it. It is one of the surprises of the coming season. Orders accepted now for delivery after December 1, 1903.

FULL PARTICULARS AND CATALOG FOR ASKING.

THE REID MFG. CO., Detroit, Mich.

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The tubing that enables you to turn out the most work and the best work most economically is

### Standard Seamless **Tubing**

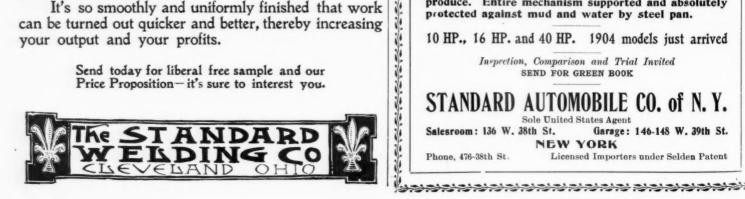
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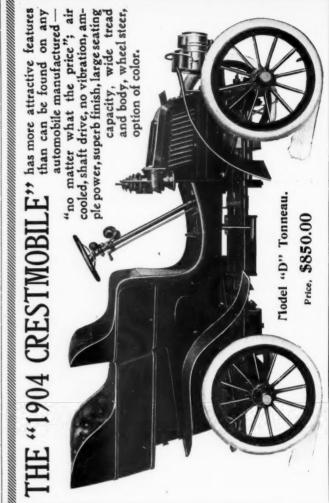
Being made from selected flat stock, electrically welded, it's stronger and better than solid stock or ordinary tubing.

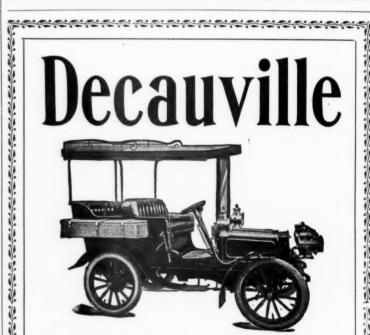
It's so much better, that you can safely use light gauges where you previously used solid stock, or heavy gauges of regular tubing.

It's so smoothly and uniformly finished that work can be turned out quicker and better, thereby increasing your output and your profits.

> Send today for liberal free sample and our Price Proposition-it's sure to interest you.







Perfect as only the best French engineering skill can produce. Entire mechanism supported and absolutely protected against mud and water by steel pan.

10 HP., 16 HP. and 40 HP. 1904 models just arrived

Inspection, Comparison and Trial Invited SEND FOR GREEN BOOK

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Licensed Importers under Selden Patent

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THAT WILL ASTONISH YOU.

THE

# Elmore Family Car

for 1904, will be the swellest proposition offered to the public.

YOU WANT TO SEE

Our New DOCTOR'S CAR Also.

ELMORE MANUFACTURING CO., GLYDE, OHIO.

W. W. GAWTHROP, Eastern Sales Manager, 244 N. Broad Street, Philadelphia, Pa. Members of Association Licensed Automobile Manufacturers.

### **TELEGRAM**

Los Angeles, Cal., Nov. 21, 1903.

J. Stevens Arms & Tool Co., Chicopee Fails, Mass.

Won five-mile race in seven forty three; ten thousand people.

(Signed) NORMAN W. CHURCH.

Our gasoline machine is the

"car that does things"

Price at Factory, \$1300

Send for illustrated catalog, containing detailed description.

### J. STEVENS ARMS & TOOL CO. 705 Main St. CHICOPEE FALLS. MASS.

Member Association Licensed Automobile Manufacturers,

### The Thomas Car Good All Seasons



Middletown, N. Y., Dec, 7, 1903.

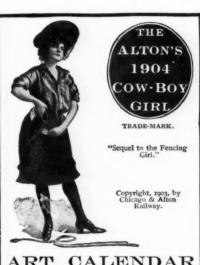
Gentlemen:—The snow was from 13 to 15 inches deep. The car certainly did the work in good shape and should effectually put to sleep the oft repeated inquiry "Will it run in the snow?" C. V. Predmore.

Ample Power; 24 H. P.; 3 Cylinders; Vibrationless; Silent; Light, 83 lbs. per H. P., therefore Economical, Efficient.

Send for Advance Specifications.

E. R. Thomas Motor Go.,

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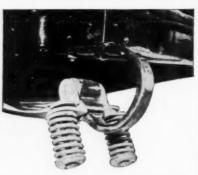
Four graceful poses from life, figures ten inches high, reproduced in colors by a process far superior to last year's calendar. Highest example of lithographic art.

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The best railway line between CHICAGO, ST. LOUIS, KANSAS CITY and PEORIA. Take the "Alton" to the St. Louis World's Fair, 1904.

### Would You? Would I?



Oakland, Cal., 27th Oct., 1903.

The Graham Co.,
Park Sq. Auto Station,
Boston, Mass.

Dear Sirs: I notice your "ad" of the GRAHAM Supplementary Spiral Springs, and as I am tired of paying for broken leaf springs for my touring car I will try your springs which you will ship to me by Wells-Fargo, C.O.D., with full instructions to apply the same.

Yours truly,

This is the regular thing by every mail.

WOULD I?

THE GRAHAM CO.

41 Columbus Ave., BOSTON, MASS., U. S. A.

EKKERANIAN ING PANGANAN ING PANGAN Namatan ing pangan ing

### "On Time"

Trains in the South

are those that run via

## Seaboard

**Air Line Railway** 

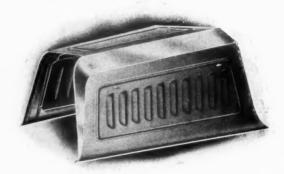
People along the line who have no clocks, set the time for meals by Seaboard trains and never have indegestion from irregularity. The Seaboard is the line to the Land of Manatee below the frost line in Florida, and is the short line to the famous Winter Resort Region of the Carolinas, Georgia and Florida.

For good reading on the subject, address

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PORTSMOUTH, VA.

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Metal Bodies
Hoods
Fenders
Radiators
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Metal Seats

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"Biggest Ever"

We Make What You Want and

MAKE IT RIGHT.

A nicely made hood adds very much to the appearance of an auto. Don't buy **cheap** hoods as they make your autos look **cheap**. Let us talk with you for **1804**. You will regret it if you wait too long. **First Gome, First Served**. Several have already specified.

### The Wilson & Hayes Mfg. Co.

46-50 Guard Street, Cleveland, Ohio.

### Kerosene Burners and Condensers

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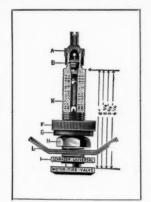
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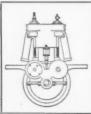
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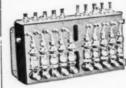
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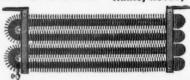
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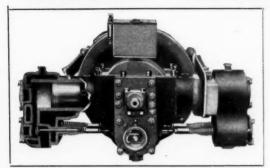
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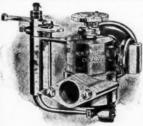
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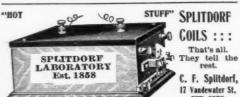
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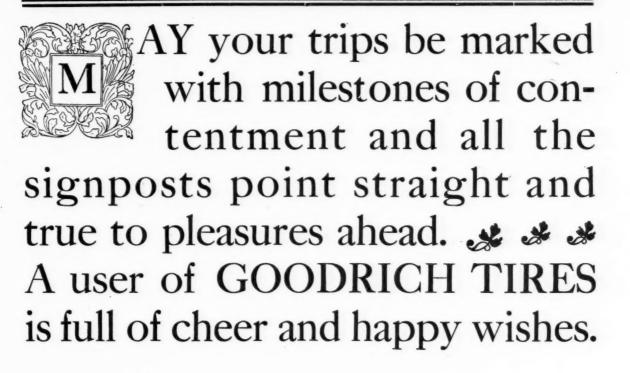
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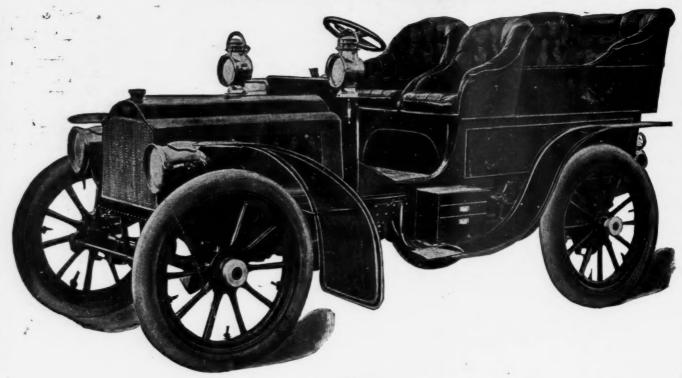
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